

EAST NIMBA NATURE RESERVE MANAGEMENT PLAN



**FORESTRY DEVELOPMENT AUTHORITY
REPUBLIC OF LIBERIA**

March, 2014

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AUTHORIZATION

This Management Plan is hereby declared as the legal requirement for managing East Nimba Nature Reserve as stated in the Forest Reform Act 2006 of Liberia, and the East Nimba Nature Reserve Act, of October 10, 2003.

The Management Plan is herein endorsed by the East Nimba Nature Reserve Co-Management Committee:



Saye Thompson
CMC Chair

Date: 03/25/2014

It has been reviewed and authorized by the Forestry Development Authority, Republic of Liberia, for implementation.



Hon. Harrison Karnwea
Managing Director
Forestry Development Authority

Date: 3/25/14

VISION AND PARTNERSHIPS

East Nimba Nature Reserve (ENNR) will become a role model for biodiversity conservation by co-management between the Government, communities and stakeholders for the benefit of everyone.¹

ENNR will be the best protected area in Liberia and will be famous internationally for co-management, eco-tourism and research.

1.1 PARTNERSHIPS

ENNR cannot be managed by the Forestry Development Agency alone.

Effective partnerships are already being formed between the ENNR, stakeholder communities, the Co-Management Committee, which includes the Forestry Development Authority, ArcelorMittal Liberia, Fauna & Flora International, Conservation International, Nimba County, Environmental Protection Agency, USAID/PROSPER, Community Forest Management Bodies, SADS, RICCE and Steward Tri-National initiative.



Co-Management Committee



**East
Nimba
Nature
Reserve**



These are currently the main organizations involved in partnerships with each other, and with East Nimba and its communities. A forum should be set up to coordinate the activities of these many partners.

¹ These twin Vision Statements were developed by the CMC and FDA participants at the Project Planning/Gap Analysis Workshop in Sanniquellie and endorsed by the Management Planning Workshop in Ganta – both in April 2013.

Policy

Work in partnership with all useful, effective partners.

Action plan

1. Discuss with partners about cooperation and coordination
2. Seek agreement on Forum (perhaps adapt an existing committee?)
3. Begin regular meetings for better coordination and cooperation

2 EXECUTIVE SUMMARY

East Nimba Nature Reserve (ENNR) was established by an Act of government, in 2003. Since that time, the reserve has had no operational Management Plan. This is therefore the first, approved plan for ENNR management and will run for five years, from 2014 to 2018, in accordance with national law.

The ENNR Management Plan (2014-2018) is designed to highlight the key management needs, policies and associated action points.

This management plan should be seen as guiding document, highlight the main areas of intervention and needs, and not as a prescriptive list of activities. The plan embraces adaptive management which means the that managers need to continually adapt their management based both on this plan and on the changing context, needs and threats facing the nature reserve.

3 INTRODUCTION

3.1 PURPOSE OF THE PLAN

This is the first complete management plan for East Nimba Nature Reserve. ENNR is the first Reserve in Liberia with a Co-Management Agreement and is therefore experimental: it is thus not always possible to propose precise Management Actions at this stage in the reserve's development. In such areas the plan provides a concept or general policy for the refinement of different management issues in future.

It is internationally accepted and is Liberia Government policy that all protected areas should have management plans. The Forest Reform Act of 2006 states: ***The Authority shall, as soon as practicable after the establishment of a National Forest, National Park, Nature Reserve, or Strict Nature Reserve, prepare and publish, and thereafter review and republish every five years, a comprehensive management plan for the Protected Area in accordance with internationally accepted standards.***²

This plan is designed to be used as a manual by the Co-Management Committee and FDA and its staff at East Nimba Nature Reserve. It will guide the many stakeholders on what to do and how to do it. The plan provides a vision that everyone should aim to achieve. The policy statements should help to provide guidance in unforeseen situations. It has been made as straightforward as possible and the objectives try to be realistic and achievable. The plan conforms to the forest sector policies and laws of Liberia.

The plan begins by briefly describing the area and then analyses its strengths and weaknesses. This analysis leads into the prioritized objectives for the reserve and then gives details of the management actions required to achieve them.

3.2 CONSULTATION

This management plan has been written in accordance with the 2003 East Nimba Nature Reserve Act and the principles of the Co-Management Agreement.

This management has been compiled with significant community involvement and participation. It builds on the outcomes of previous consultations including the Management Planning Workshop in Ganta, and the Project Planning/Gap Analysis Workshop in Sanniquellie, both in April 2013. The participants of those workshops are listed in Appendix 8.

In addition, extensive consultation with CMC, FDA and the wider communities took place between November 2013 and February 2014. CMC members toured the key affected communities and presented a PowerPoint summary of the plan, and sought feedback. The 25 'towns' that make up the 'primary' (most affected) communities, of the Sehyi, Gba and Zor chiefdoms were visited during this period to investigate community concerns, needs and wishes. Key areas of concern center on what the NR will restrict or take away, namely access to future farmland and hunting; and what the NR and its partners will do to offset these / any negative impacts that improved conservation brings to bear on local livelihoods.

During this consultation, the following key issues were raised by the communities:

- **Costs / losses:**
 - Loss of future farming land

² Quotations of Liberian Law and official policies are given in ***bold italics*** throughout this plan

- Loss of hunting / forest protein
- Loss of NTFPs
- Human-wildlife conflict
- Children unable to see the forest and know its wildlife
- **Benefits / solutions:**
 - The nature and amount of compensation and/or livelihood support
 - Fish ponds, farming, animal raising, soap making, afforestation/reforestation, etc.
 - Specific support for hunters
 - Help with roads / infrastructure
 - Jobs / benefits (CMC, auxiliaries, etc.)
 - Training, education and capacity building opportunities
 - Involvement / empowerment of women in ENNR / CMC
 - Effective law enforcement, and clear role of community here
 - NGO's must keep their promises
 - Clear boundary demarcation

All the feedback from the affected communities has been incorporated into this Management Plan, where possible. Moreover, all the data collected will be used to inform the CMC of community fears, needs and aspirations, and will be used to improve the Conservation Agreements and other forms of 'outreach' from ENNR to the local people.

It should be noted here that all mitigation of adverse social impacts and 'benefits' are contingent upon community involvement in ENNR's conservation and positive conservation outcomes. Moreover, it may not be possible to avoid or mitigate ALL negative social impacts. It is however a **key goal** of this Management Plan for ENNR, and partners, that the communities are included in management and impacts upon them are as low, mitigated or compensated for, as possible.

Wider, final consultation on this plan **will be/was** undertaken on March 24th and 25th, in Sanniquellie, with a range of key stakeholders, including CMC, FDA, AML, CI and additional community members and representative. During this 2-day workshop, remaining technical and logistical issues will be/were addressed, and compromise and/or consensus achieved on fundamental issues of NR function, cost, benefits, roles and responsibilities

3.3 PREVIOUS PLANS

There have been two attempts to write a management plan for ENNR – in 2009 Conservation International (CI) produced the "ENNR Action Plan, Draft 9". In April 2011 the USAID Land Rights and Community Forestry Program (LRCFP) produced the "Co-management Planning Framework for ENNR Draft Version 0.1". It is understood that neither of them was completed or formally accepted by FDA but both contain useful information.

A Business Plan was written for CI in 2012. That plan also contains useful material and in particular the Excel spreadsheet or "Cost Calculation Tool" has been very helpful for estimating the costs of implementing the plan.

3.4 PERIOD OF VALIDITY

In accordance with the Forest Reform Act of 2006, this plan will be valid for five years, after which it should be reviewed and republished.

3.5 THE SCOPE OF THIS PLAN

This is the first approved management plan for ENNR. It describes many activities that need to be carried out. It will not be possible to achieve all of them in five years, but the important thing is to make a start on actual Protected Area Management.

It would have been possible to write a great deal more and to make the plan more complex and “scientific” but it is felt that there is already more than enough in this plan to keep all the partners fully occupied on the main priorities for the next five years. The plan tries hard to be realistic and achievable.

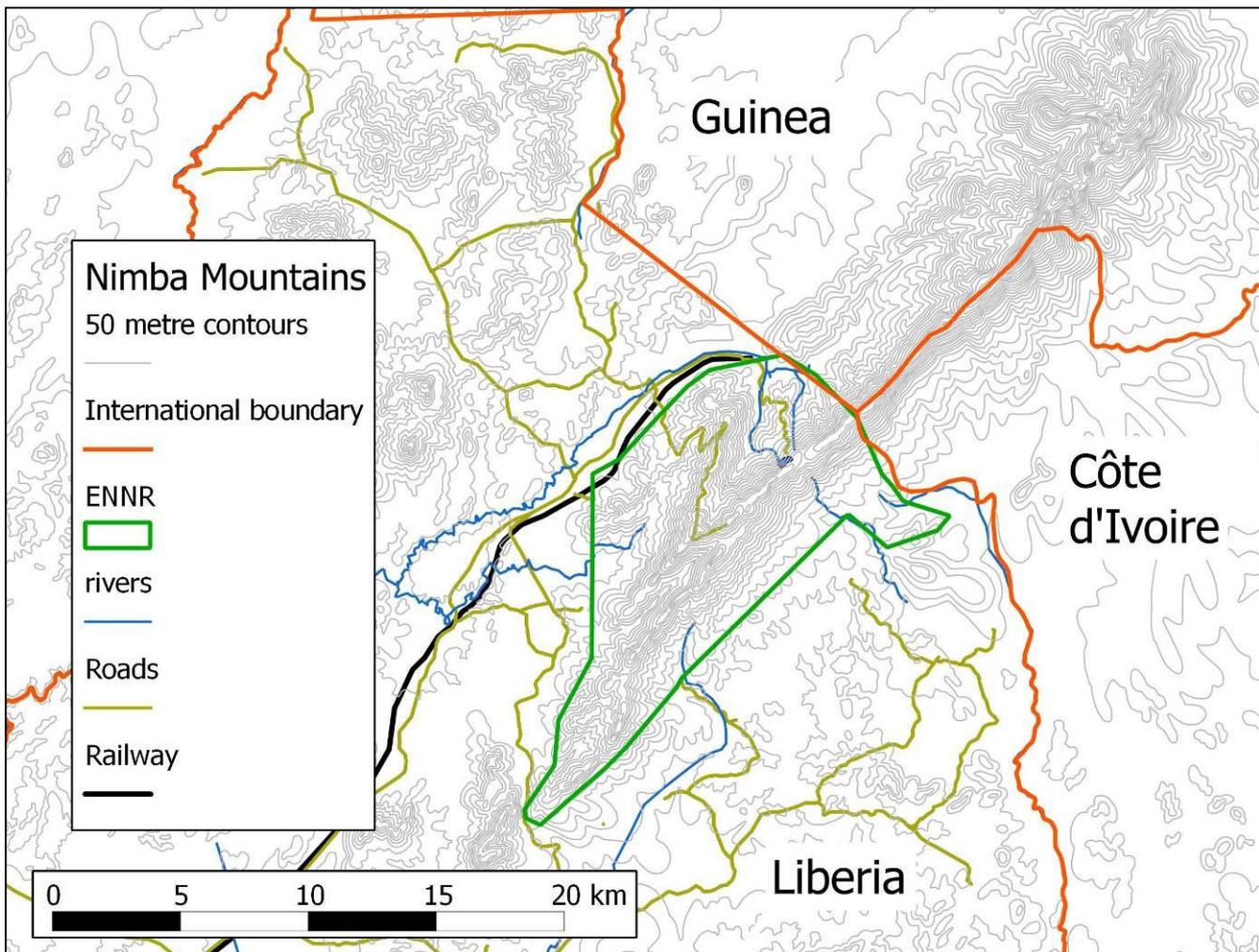
The next ENNR Management plan can adopt the “CAP” – Conservation Action Planning – approach, as that has been adopted by the Tri-National Partnership for the Nimba Massif.

4 BACKGROUND INFORMATION

4.1 LOCATION, TOPOGRAPHY AND ACCESS

ENNR is located in Nimba County in north-central Liberia. It lies within latitudes 7°24' and 7°37' North and 8°26' and 8°37' West. ENNR (as demarcated) has an area of **11,553 hectares** (115.53km² or 28,548 acres).

The reserve is on part of the Nimba Mountains range. The altitude varies from 450m to 1,752 meters at Mount Nimba, which is the highest point in Liberia and is shared with Côte d'Ivoire and Guinea. There is great topographical diversity, with valleys, plateaus, rounded hilltops, rocky peaks, cliffs, waterfalls and bare granite blocks (EPA 2007).



Nimba Mountains in Liberia, Guinea and Côte d'Ivoire

The Reserve's main office is at Zortapa which is about 23km north-west of Sanniquellie by road, which takes about 30mins. Sanniquellie is the capital of Nimba County and is about 285km north-west of Monrovia by road, which currently takes about 6 hours. The Monrovia to Ganta road is being rebuilt, and when finished the journey will be much easier. The Ganta to Yekepa (the small town where AML is headquartered in ENNR) road is also going to be upgraded in the near future.

4.2 CLIMATE, GEOLOGY AND SOILS

Climate: The area has a sub-equatorial montane climate with distinct wet (April-November) and dry (December-March) seasons. The annual rainfall is approximately 3,000 mm, which is considerably more than the lower lands to the south. Relative humidity sometimes reaches 99% and the temperature ranges from 14°-30°C. There is a persistent cloud belt that exists between 850 and 950 m. Further details are given in Appendix 5.

Geology: The mountains consist of Precambrian basement rocks. Granite predominates, but dolerite, gneiss, schist and quartzite are also present.

Soils: Lithosols are the most common soil type on many of the mountains, although variations exist due to aspect and degree of weathering. The soils are fertile and those around ENNR are rich in iron ore and other minerals.

4.3 VEGETATION

Forest Cover

The Nimba mountains are located in one of the Global 200 Ecoregions - Guinean Moist Forests. Forest cover includes lowland rainforest and savanna woodland. Gallery forest is dominated by *Parinari excelsa*, primary forest by *Triplochiton scleroxylon*, *Chlorophora regia*, *Morus mesozygia* etc. and drier mid-altitude forests by *Triplochiton scleroxylon*, *Piptadeniastrum africanum* and *Parkia bicolor*. On the eastern slopes, the vegetation merges into lowland forest. Dense cloud cover frequently persists at ~850m, giving a higher annual rainfall. These moister areas of cloud (gallery) forest at about 1,000m contain pure stands of the tree-fern *Cyathea cylindrica*. Above 1,200m, there is montane forest typified by *Parinari excelsa* and *Garcinia polyantha*.

Riparian vegetation

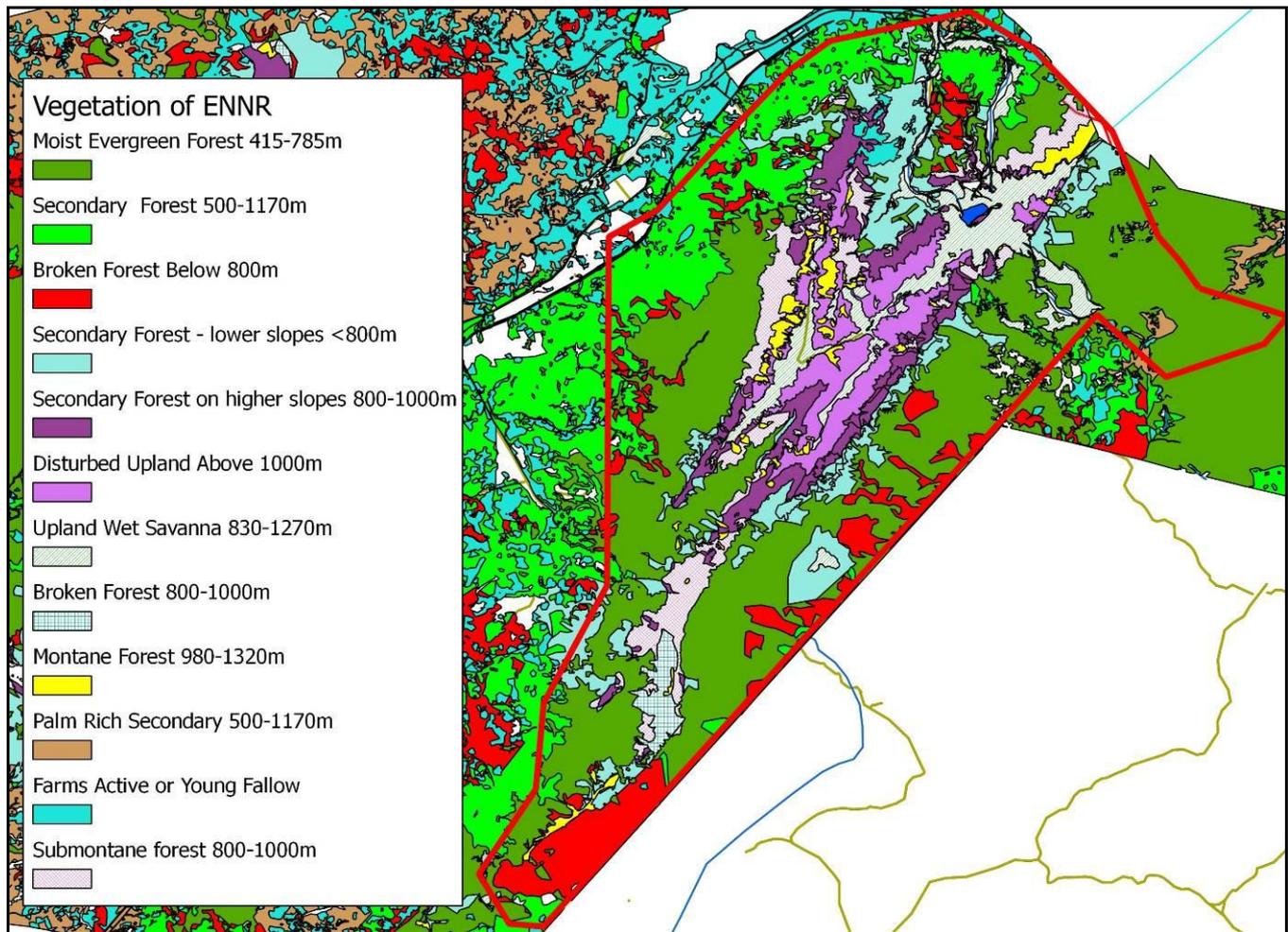
Two of the main rivers in Nimba, the Yah and the Yiti, contrast in terms of their importance for wildlife and vegetation. The Yah River has been polluted by silt and waste products from the previous LAMCO mine, and is no longer a viable habitat for most plant and animal life. The Yiti River is a healthy mountain stream, flowing between two main ridges of Nimba, surrounded by steep slopes of rainforest. These rainforests contain important chimpanzee habitat, tree ferns. Unusual and rare birds such as the Tiger Bittern (*Tigriornis leucolophus*) have been observed on river shores.

Savannah

Not to be confused with the degraded, deforested and now grass-covered areas where mining once took place, natural savannah occurs close to the Nimba range, at the foot of the mountain and along the border with Guinea. *Hyparrhenia diplandra* is the most widespread grass and is extensive, forming a favored habitat for several species of snake. Thickets of dense, scrubby vegetation have also become an important habitat at Nimba given that degradation by human land use can encourage shrubs and grasses to form such 'pockets', normally in sheltered areas, which then act as 'islands' among the grassland or savannah.

Wetlands & Riparian Corridors

The Nimba Area is one of the WWF Ecoregions - Upper Guinea Rivers and Streams, with a large number of wetlands and rivers. Owing to its altitude and isolation, there is a high level of species diversity and endemism including fish, crabs, frogs and toads



The main vegetation types of East Nimba Nature Reserve.

4.4 FAUNA

4.4.1 Major mammal species

Globally threatened (EN: Endangered, VU: Vulnerable), Near Threatened (NT) or Data Deficient (DD) mammals recorded (●) or suspected to be present (?) during surveys in 2008-2010. FP refers to species Fully Protected in Liberia.

English name	Scientific name	IUCN Red list	Protection	ENNR		Tokadeh	Gangra
West African Chimpanzee	<i>Pan troglodytes verus</i>	EN	FP	●		●	●
Sooty Mangabey	<i>Cercocebus atys atys</i>	VU	FP	●		●	●
Diana Monkey	<i>Cercopithecus diana diana</i>	VU	FP	?		?	–
Western Black-and-white Colobus	<i>Colobus polykomos</i>	VU	FP	?		●	?
Olive Colobus	<i>Procolobus verus</i>	NT	FP	?		–	–
Common Bentwing Bat	<i>Miniopterus schreibersii</i>	NT		–		–	●
Nimba Otter Shrew	<i>Micropotamogale lamottei</i>	EN		●		●	?
Buettikofer's Shrew	<i>Crocidura buettikoferi</i>	NT		●		–	●
Doucet's Musk Shrew	<i>Crocidura douceti</i>	DD		–		●	●

Slender-tailed Squirrel	<i>Protoxerus aubinnii</i>	DD		?		?	●
Liberian Mongoose	<i>Liberiictis kuhni</i>	VU	FP	?		?	?
Bourlon's Genet	<i>Genetta bourloni</i>	NT		?		?	?
Johnston's Genet	<i>Genetta johnstoni</i>	VU		?		?	?
Leighton's Linsang	<i>Poiana leightoni</i>	DD		?		?	?
African Golden Cat	<i>Caracal aurata</i>	NT	FP	●		?	?
Leopard	<i>Panthera pardus</i>	NT	FP	?		●	●
African White-bellied Pangolin	<i>Phataginus tricuspis</i>	NT	FP	●		●	●
Giant Ground Pangolin	<i>Smutsia gigantean</i>	NT	FP	–		–	?
Jentink's Duiker	<i>Cephalophus jentinki</i>	EN	FP	?		–	?
Ogilby's (Brooke's) Duiker	<i>Cephalophus ogilbyi brookei</i>	VU	FP	?		?	●
Zebra Duiker	<i>Cephalophus zebra</i>	VU	FP	?		–	?
Lowland Bongo	<i>Tragelaphus e. euryceros</i>	NT	FP	?		–	?

With so many mammal species only recorded as “expected” there is clearly scope and need for more, targeted surveys of the key taxonomic group, including, if possible, permanent camera trapping (as part of bio-monitoring).



The Nimba otter shrew,

Micropotamogale lamottei

(Photo by permission of Prof Ara Monajem)

4.4.2 Birds

The birds of the Nimba Range and nearby areas are relatively well-studied, as a result of the research station that operated at Grassfield from in the 1960s and 70s.



The Nimba flycatcher

During that period, two species new to science were discovered – Nimba Flycatcher and Yellow-footed Honeyguide. Both species have since also been recorded away from the Nimba Range. All but two of the 15 bird species endemic the Upper Guinea forests EBA (Endemic Bird Area) are known from the Nimba Range, although White-breasted Guinea fowl may no longer be present. The IBA/EBA status is only granted to those areas categorized as having the highest possible biological importance and threat level.

The Reserve has at least 171 resident species of which 9 are listed as Vulnerable by BirdLife International, and which have the highest priority for conservation and

protection³. These are the White-breasted Guineafowl *Agelastes meleagrides*, Rufous Fishing-owl *Scotopelia ussheri*, Brown-cheeked Hornbill *Bycanistes cylindricus*, Yellow-casqued Hornbill *Ceratogymna elata*, Western Wattled Cuckoo shrike *Campephaga lobata*, White-necked Picathartes *Picathartes gymnocephalus*, White-eyed Prinia *Prinia leontica*, Yellow-bearded Greenbul *Criniger olivaceus*, and Nimba Flycatcher *Melaenornis annamarulae*. There are also 7 species which are Near Threatened.

4.4.3 Others

There are two endemic genera of crabs and several endemic fish species. Endemic species of frogs include *Astylosternus occidentalis*, *Hyperolius occidentalis*, *Cardioglossa aureoli*, and *Bufo cristiglans*. The Liberian subspecies of the Nimba toad, *Nimbaphrynoides occidentalis liberiensis* was rediscovered in 2007/8, close to the former LAMCO mine site.⁴ In depth butterfly surveys have been conducted and the report will be available in early 2014.



The Nimba toad

Nimbaphrynoides occidentalis liberiensis

(Photo by permission of Dr L Sandberger *et al*)

Policy

ENNR management, including protection and patrolling, will be guided by high quality and up to date data on key species, using existing data, additional baseline surveys and the selection of indicators species and implementation of monitoring protocols

Action Plan

1. ENNR will review existing data and undertake additional baseline biodiversity surveys to fill gaps in knowledge on key / threatened species and / or habitats and areas
2. ENNR will develop a bio-monitoring project (see Section 11: Monitoring and Research)
3. Turn data into management tools

4.5 HISTORY AND PAST MANAGEMENT

4.5.1 History

The ENNR was established (gazetted) in 2003, out of elements of the East Nimba National Forest, under the East Nimba Nature Reserve Act. No significant management presence was evident in the National Forest reserve from the time of the establishment of the Bureau of Forest and Wildlife Conservation, around 1953, until mineral exploitation was initiated in the 1960s.

³ BirdLife International website: <http://www.birdlife.org/datazone/sitefactsheet.php?id=6458>

⁴ Sanderberger et al, Zootaxa 2010. <http://www.mapress.com/zootaxa/2010/f/z02355p068f.pdf>

4.5.2 Archaeology and Cultural Values

There are no known archaeological remains in the area, except perhaps for two caves that *might* have been used for shelter by hunters for hundreds of years. The people living around the reserve have many traditional cultural values related to the land, the forest and the wildlife. The name "Nimba", originated from "*Nenbaa ton*" which means "slippery mountain where beautiful young girls slip and fall".⁵ It is said that people used to make gunpowder on the mountain. See also Chapter 9.

4.5.3 Mining

The most conspicuous feature of ENNR is the site of the former Liberian American Minerals Company (LAMCO) iron ore mine. At least 10% of the reserve has been severely damaged by mining operations. Iron ore was discovered in 1953 and the mine operated from the 1960s to 1989. Mining expanded to Mt Tokadeh in 1973. A huge opencast mine was created.



The Blue Lake and the LAMCO mine

Access roads were made and a railway was built to take the iron ore for export from Buchanan. Much forest was used for making the railway ties or sleepers. The mining was done by blasting and scraping and caused massive impact to biological diversity both directly through habitat loss and indirectly through pollution by tailings and spoils washed down the mountain into rivers. An area 8 km by 0.5 km was affected by the disposal of 30 million tons of waste rock to new sites. Much of the waste is toxic and does not support life. Parts of Nimba, which used to be high forest, are now savannah. The streams and rivers which flow from the area were very badly affected during mining, and the Yah Creek and St. John River are still red with mine waste.

The LAMCO mine at Mount Nimba was included into the ENNR with a view to ecological restoration and for contiguity with the protected areas of the Nimba range in Guinea and Côte d'Ivoire.

Gbapa has a history of artisanal diamond mining activities which date back to the late 1950's but they do not affect ENNR.

4.5.4 Management of the Reserve to date

A National Forest was established in the area in the late 1950's, as part of the permanent forest estate of Liberia, although there was no active management of the forest at that time and for several decades thereafter. Mineral exploitation began in the 1960s.

In 1968 the German Forestry Mission to Liberia carried out surveys which led to the creation of the East and West Nimba National Forests.

In the late 1970s the FDA, IUCN and WWF conducted Liberia's first nation-wide ecological survey. The results were released in 1983 and recommended Mount Nimba

⁵ According to Dr. Nya Kwiawon Taryor, Sr in his book "Liberia Facing Mount Nimba"

Nature Reserve as one of seven potential protected areas; a number later expanded to fourteen (14).

The ENNR was established by an Act of the legislature, in 2003. A co-management agreement was signed between and FDA and the communities of Sehyi, Gba, Zor in 2010. This management plan will be the first for ENNR and will cover a 5-year period, from 2014 – 2018.

5 POLICY FRAMEWORK

It is reasonable to state that the policy framework for ENNR is very strong. The Act that created ENNR provides 5 clear goals; FDA has a clear mission for Protected Area conservation; a Co-Management Agreement has been established for partnership with the neighboring communities; it is a Key Biodiversity Area, an Alliance for Zero Extinction site, an Important Bird Area and an Endemic Bird Area. There is a Tri-National Agreement with Côte d'Ivoire and Guinea. The Forest Policy provides a clear economic policy. These policies are summarized in turn in this section, and provide a clear framework for the management of the reserve.

5.1 ESTABLISHMENT AND ENABLING LEGISLATION

The East Nimba Nature Reserve Act was passed in October 2003. The full text of the Act is given at Appendix 1. The Act states: ***The said Nature Reserve shall be managed as a permanent component of the Protected Forest Area Network of Liberia in accordance with such rules and regulations as may from time to time be promulgated by the Forestry Development Authority of Liberia for the purpose.***⁶

Furthermore, the 2006 Forest Reform Law states:

No person shall:

In a National Park, Nature Reserve, or Game Reserve, prospect, mine, farm, hunt, fish, extract Timber or non-timber Forest Products, or take any other action except those for management or non-consumptive uses, such as tourism, recreation, and research.

5.1.1 MANAGEMENT GOALS

The ENNR Act provides the following goals:

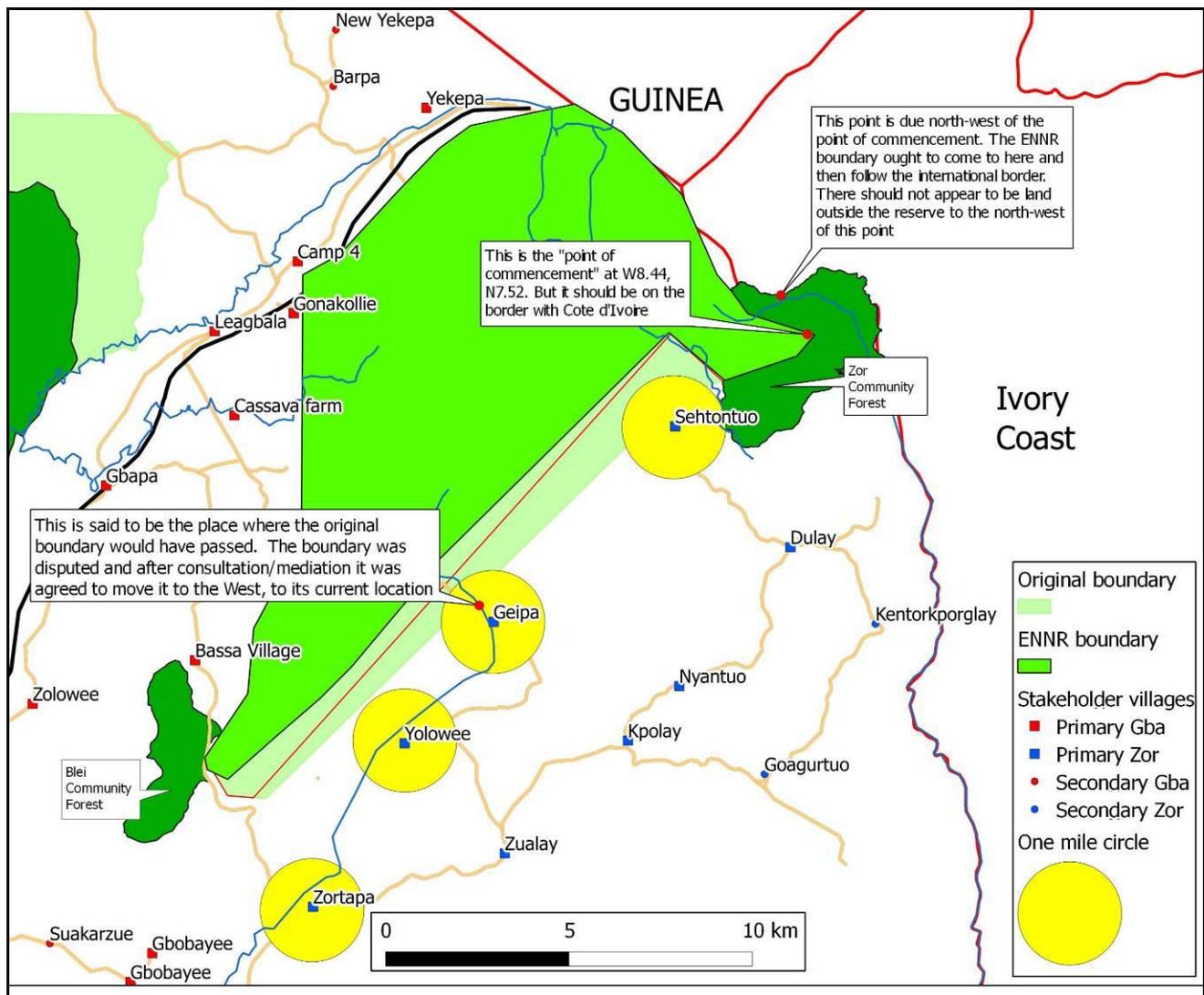
1. ***Our forests are among our greatest natural resources and may be made to contribute greatly to the socio-economic, scientific and educational welfare of Liberia by being managed in such a manner as to ensure their sustainable use;***
2. ***The protection and conservation of these resources must be carried out promptly, efficiently and wisely, under such conditions as will ensure continued benefits to present and future generations of Liberia,***
3. ***The Nimba Mountains complex is internationally recognized as a high priority site for its biological richness and Nimba National Forests is on a Government of Liberia list of representative forest habitats recommended for strict protection;***
4. ***The World Heritage Council of UNESCO has declared the Guinea-Cote d'Ivoire side of the Nimba Mountain complex as a World Heritage Site and the Liberian side is likely to meet the criteria for such designation;***
5. ***Reclassifying the Nimba National Forests into a protected forest area category will support a tri-national program for the integrated conservation of Mount Nimba and collaboration between Liberia and the countries sharing this landmark.***

⁶ Statements of Government policy are given in ***bold italics***, throughout the plan

5.1.2 BOUNDARY DEMARCATION

The Reserve was gazetted in 2003. In 2007 FDA staff began to cut the boundary on the eastern side of the reserve, according to the description in the ENNR Act, but they met some local communities who were unhappy and requested that the process stop until further discussion. Consultation was facilitated by ARD/LRCFP and a compromise was reached. In 2010 it was agreed that the eastern boundary would be moved westwards by “1 mile”, so that there would be more space for farming for the communities at Sehtontuo, Geipa and Yolowee.

The reserve is 1.1 miles (1.8km) from Geipa and Sehtontuo, 1.5 miles (2.4km) from Yolowee and 2.7 miles (4.3km) from Zortapa. The eastern boundary on the ground (from near to Sehtontuo to the southern tip of the reserve – about 17km) does not correspond to the description in the Nimba Act 2003; and this needs to be updated.



Map showing details of the eastern boundary of ENNR.

The pale green area shows the reserve as gazetted – the red line shows how the reserve appears on many maps since 2010. The bright green area shows the reality on the ground. The following parts of the boundary description need to be corrected (and possibly others as well).

[item 10] “thence 54.4 chains to -8.58E, 7.41 N;”

[item 11] “thence due northeast for 786.4 chains to just north of the town of Setontuo at 8.47E, 7.51 N;”

Also the above map of the reserve does not correspond with the description.

[item 2] “thence a line runs 472 chains due north-west crossing the Noun River along the border over Mount Nimba to -8.5 E, 7.58 N; on the Liberia Guinea border;”

That line does not begin in a “due north-west” direction, and does not appear to meet the international boundary quickly enough.

However, the southern tip of the reserve is especially important for biodiversity – it has a high concentration of rare IUCN Red List species. It is proposed that there should be a new Ranger post there, to make sure that the area is well protected. The feasibility of establishing a Community Forest (CF) in this area, for Zortapa community, should also be explored, with such a forest being contiguous to ENNR and the Blei CF.

Policy

The ENNR Act should be updated to reflect the situation on the ground

Action plan – correction of boundary description.

1. During the boundary cleaning (Section 7.2) GPS waypoints should be taken (in decimal Lat-Long format, not UTM) at 1km intervals and particularly at all the “Metes” – the changes of direction of the boundary.
2. These points should then be displayed on a large-scale map and used to revise the description of the eastern part of the boundary.
3. The new “Metes and Bounds” should be formally gazetted to become law.
4. FDA should use the revised boundary as established for all maps, and change the number of acres/hectares to reflect reality.

5.2 FDA POLICY

The FDA Mission Statement for Protected Areas states:

The Protected Areas Network of Liberia conserves unique biodiversity and ecosystem services through stakeholder (especially community) involvement in management, in a way that ensures sustainable benefits, cultural values, and abiding by the rule of law, for now and generations to come⁷.

Land Ownership: The land of ENNR is publically owned by the Government of Liberia and managed by the Co-Management Committee (CMC) under sanction of the Forestry Development Authority (FDA). Except for the East Nimba Nature Reserve, and the three CFs of Gba, Zor and Blei, the surrounding land is claimed by local communities as they are the custodians of the areas, over which they have customary rights.

5.3 CO-MANAGEMENT

A Co-Management Agreement was signed in September 2010 for ENNR between FDA and the community representatives of Sehyi, Gba and Zor, and will run for (is valid) 5 years. (Appendix 2 gives the full text of the Co-Management Agreement) The aim is to work in partnership in order to:

⁷ Liberia’s Protected Areas Strategy Workshop: Participants’ Resolution (10 August, 2007)

- (a) **Establish a management body for the co-management of the ENNR made up of representatives of the JFMC and FDA and hereinafter referred to as the ENNR Co-management Committee.**
- (b) **Promote the conservation and management of biodiversity in the ENNR and jointly reduce and/or avoid threats to that biodiversity;**
- (c) **Establish a process of shared responsibilities regarding use & management of ENNR;**
- (d) **Provide information to the Communities and raise awareness about sustainable use, management and conservation and the value of forest resources to the community and the nation;**
- (e) **Ensure sharing of the costs and benefits of ENNR management, between the state (FDA) and community;**
- (f) **Identify and resolve, through a consultative process, any conflicts that may arise in the management and conservation of resources in the ENNR;**
- (g) **Ensure the effective and efficient management of the ENNR for this and future generations, and**
- (h) **Assist the management of the ENNR.**

There are some parts of the Co-Management Agreement (CMA) that do not correspond with the provisions of the ENNR Act of 2003. In particular the following section 4.04 (a) suggests that some NTFP collection may be permitted (see below). This is not correct and this section of the CMA should be amended immediately.

“RIGHTS AND OBLIGATIONS”

Section 4.04 The Co-Management Committee shall:

- (a) *In consultation with Communities, develop, draft and submit to FDA for approval, rules for ENNR management regarding control of hunting, mining, fishing, farming, settlement, and wildlife protection within the ENNR; domestic animal control; fire control; illegal entry; and non-Timber Forest Product (NTFP) collection and management.”*

In reality, however, the law is clear regarding use/extraction of forest resources and NTPF (see 5.1, above); and all such activity is forbidden. Some use of forest resources is permitted with the Community Forests, and other forest areas, that abut ENNR (forming a *de facto* buffer zone), and here the text above would be correct, in as much as the use of such resources would require prior planning and approval from FDA.

Policy

The Co-Management Agreement should be updated to correspond with the provisions of the ENNR Act, 2003, which has precedence.

Action plan

1. The Co-Management Agreement should be reviewed by the CMC, with support from FDA Legal Department
2. If agreement is reached the amended version should be signed by all parties that signed the original agreement

5.4 INTERNATIONAL STATUS

East Nimba is a **Key Biodiversity Area** (KBA) and the most important **Alliance for Zero Extinction** (AZE) site in Africa. The Nimba Mountains were designated as an

Important Bird Area (IBA) by BirdLife International in 2001. It is also part of the Upper Guinea Forests **Endemic Bird Area (EBA)**.

The East Nimba Act, 2003, states that the World Heritage Council of UNESCO has declared the Guinea-Côte d'Ivoire side of the Nimba Mountain complex as a **World Heritage Site** and so *“the Liberian side is likely to meet the criteria for such designation.”*

Management Category: As Liberia's designations closely follow the IUCN Protected Area Management Categories, ENNR corresponds most closely to Category II (national park), although under the 2003 Act it is a Nature Reserve.

5.4.1 Trans-Boundary Conservation

One of the aims of the creation of ENNR is to *“support a tri-national program for the integrated conservation of Mount Nimba and collaboration between Liberia and the countries sharing this landmark.”*

This aim is repeated in the National Forest Policy of 2006 *“Improve co-operation with neighboring countries to address trans-boundary conservation issues”*.

5.4.2 Tri-National Agreement

On December 12, 2012, the Governments of the Republic of Liberia, Cote d'Ivoire and Guinea jointly signed a framework agreement *“for integrated and sustainable conservation of the Nimba Mountains”*, as follows:

Article 1: *The three parties recognize the Nimba Mountains Massif as a common biosphere reserve with a cross-border status, to be integrated to the Afri-MAB network and the Global Network of Biosphere Reserves.*

Article 2: *The Parties recognize Mount Nimba as an exceptional site of biological diversity that must integrate the Global Network of Biosphere Reserves and the AFRI-MAB Network (for Côte d'Ivoire), the AFRI-MAB and Biosphere Reserves networks as well as the World Heritage Sites (for Liberia).*

Article 3: *The Parties pledge to correctly apply the principles of ecosystems and biodiversity conservation, in accordance with:*

- *The Seville Strategy;*
- *The Maputo Convention on the conservation of nature and natural resources;*
- *The principles of the United Nations Environment Programme concerning the transboundary management of shared natural resources and;*
- *The regional planning measures jointly adopted in the framework of the Mano River Union.*

Article 4: *A tripartite annual consultation framework is hereby instituted to discuss all the issues related to the tripartite management of the Nimba Mountains, in particular concerning:*

- *Regular contacts between the institutions in charge of the management of the Nimba Mountains (exchange of experiences, field visits, scientific meetings, exchange of document, etc.);*
- *The establishment of legal frameworks for the implementation of identified actions;*
- *The harmonization of policies and management objectives.*
- *The coordination of management and protection actions;*

Article 5: The three parties pledge to strengthen their cooperation efforts with international institutions and organizations for technical and financial assistance in the tripartite management of the Nimba Mountains range.

Article 6: In this regard, a Technical Committee for the monitoring and implementation of the present Framework Agreement is hereby established. The organizational structure and operation thereof shall be decided through a Protocol that shall determine the rules concerning participation therein and its management.

Article 7: This Framework Agreement shall enter into force on the date of its signature. [December 12, 2012]

A Vision was developed at the December 2013 Meeting of the Tri-National Committee:

Nimba Massif biodiversity is conserved effectively for the wellbeing of current and future generations of all stakeholders and contributes to regional peace and security.

Policy

1. The broad policy will be to work towards an international framework for the sustainable management of the Mount Nimba region.

Action plan

1. CMC and/or FDA (central) to have a permanent member of the **Technical Committee**
2. Produce a final list of priority species for conservation⁸
3. Produce a draft threat analysis⁹
4. Establish PA boundaries on the ground¹⁰
5. Adopt new text of boundaries into law to reflect reality. (Especially Liberia)
6. Finalize management plans at national PA level
7. Strengthen capacities, judiciary, Law Enforcement, and communities
8. Support better livelihoods for communities
9. Education and awareness to improve understanding of biodiversity and its importance
10. Develop a framework for the Trans-boundary management plan or strategy

5.5 ECONOMIC POLICY

One of the main aims of the National Forest policy of 2006 is ***“to contribute to the national development goals of poverty alleviation and increased food security by increasing the opportunities for forest-based income generating activities.”***

This should be achieved through the following wildlife and protected area management activities:

5.5.1. Increase community participation in protected area management in all forest areas, where possible, and in particular, through collaborative management of the reserve;

⁸ A draft list was completed by FFI in Jan 2013 using expert inputs from scientists.

⁹ By FFI, to be presented to the Steering Committee in March 2013

¹⁰ It is reported that the international boundary between Liberia and Guinea and Ivory Coast is not clearly marked on the ground. However, its demarcation is outside the scope of the ENNR management plan

5.5.2. Strengthen and improve alternative livelihood opportunities to reduce rural dependence on forests and wildlife.

5.5.1 Mining

Extensive iron-ore mining took place before ENNR was created.

The Liberian Government policy for mining in protected areas is made clear in the Forestry Reform Law of 2006. Section 8.2.c states –

- c) The Government shall not grant Class B or Class C Mineral Rights in Protected Areas or Proposed Protected Areas.
- d) The Government shall not grant Class A Mineral Rights in National Forests or Proposed Protected Areas unless:
 - The Authority has concurred with the grant;
 - The Authority has written appropriate guidelines for maximum protection of the Environment and sustainable management of the forest during exercise of the grant; &
 - Compliance with the guidelines is a condition of the grant.

6 EVALUATION AND OBJECTIVES

6.1 IMPORTANCE

The Nimba Mountains rise from lowlands at about 400 meters to peaks at over 1,750m. This change in altitude is unique in humid West Africa, and gives rise to an enormous variety of habitats from lowland rainforest and savanna, through mid-altitude rainforest, to high altitude forest and grasslands. It is thought that the mountains served as a refuge for many Upper Guinean species during the Pleistocene climate changes. This has led to extraordinary biodiversity – (more than 2000 plants, 2500 invertebrates, and 317 vertebrates) and more than 20 endemics such as the Nimba Otter-shrew, the viviparous toad and many high altitude plants. In recognition of high rate of biological diversity and endemism, ENNR is an IBA, EBA, KBA and a Global 200 Ecoregion (see section 5.4).

The Nimba Mountains extend into Guinea and Côte d'Ivoire where there is a transboundary Natural World Heritage Site. However, the mountains also contain some of the best iron ore in the world which was mined in Liberia from 1963 to 1989. This mining led to serious environmental degradation in about 10% of the area that became East Nimba Nature Reserve in 2003.

6.2 SWOT ANALYSIS

A Strengths, Weaknesses, Opportunities and Treats (SWOT) analysis was created by the CMC/FDA workshop in Sanniquellie in April 2013. Some additional points [in square brackets] added during management planning process:

Strengths	Weaknesses
ENNR Act, 2003 New Forestry Reform Act, 2006 Co-Management Agreement, 2010 CMC is good at community mobilization Good [although not always/everywhere] relations between ENNR & communities Some trained and experienced staff Offices in all 3 zones Auxiliaries are fit for patrols Auxiliaries know the forest well Boundary is demarcated	No financial support No patrol equipment and rations No uniforms and little fuel Few motorbikes – vehicles and equipment not maintained Auxiliaries poorly paid More training needed for most staff CMC not paid and not supported Low capacity in forest and resources management Poor provision for livelihoods for communities around ENNR Communities not consulted on major decisions on ENNR Lack of coordination between ENNR and FDA HQ in Monrovia Inadequate computers and no internet. Not enough manpower for the area they have to cover ... [It is relatively small in area 11,553ha – and therefore vulnerable] [10% of ENNR damaged by mine] [Hunting and trapping is widespread]

Opportunities	Threats (things that <i>could</i> happen)
MoU between FDA and AML signed International conservation NGOs support ENNR Community participates in forest management Community willing to work with FDA staff Capacity building of some staff by partners World Heritage Status is possible Improved transboundary co-operation (Link CMC and ENNR to REDD +?) [new project designed in 2013] [Management plan drafted, 2013] [New Monrovia – Ganta road being built] [Upgraded Ganta – Yekepa road planned] [Modest opportunities for tourism]	Lack of logistical support Harvest of NTFPs Alien invasive species Lack of community cooperation Lack of alternative livelihoods Increase in population / trespass Farming / encroachment / Wild fires Violation of Co-Management Agreement Withdrawal of support by environmental NGOs Hunting / fishing No political will for PA. No respect for FDA Mining Political instability [Population pressure – people will move from the new mine towards ENNR.] [New roads from Yekepa to Monrovia will increase immigration towards ENNR.]

It is important to note that the situation regarding activities, out-reach, attitudes and capacity is constantly changing; with this table representing an important snap-shot and baseline, from the start of the management planning process, since when much has changed, including agreements and achievements on range of issues.

6.3 VALUES

The main values of ENNR can be summarized as follows:

1. Very high biodiversity – Key Biodiversity Area, Alliance for Zero Extinction site
2. High levels of endemic species – one of only 2 Endemic Bird Areas in W. Africa
3. Important Bird Area
4. Good legal and policy framework
5. Co-Management Agreement; and a model for other PAs in Liberia and globally
6. Tri-National Agreement with Côte d'Ivoire and Guinea.
7. Excellent partnerships between FDA, AML, CMC, FFI, CI and others
8. Related to biodiversity, the provision of a range of ecosystem goods and services:
 - Carbon storage; Watershed protection and irrigation; Aesthetic and touristic value; Cultural and spiritual value; and Pollination

6.4 MAIN OBJECTIVES - OVERVIEW

The SWOT analysis and the “Key Values” lead into the main objectives for ENNR:

1. Nimba Mountains have very special biodiversity and must have strict protection;
2. ENNR will be co-managed by FDA and the local community, in partnership with AML, FFI, CI etc.
3. There should be support for local community livelihoods.
4. Conservation Agreements will be used to ensure community support
5. Attempt to coordinate, under this management plan, all NGO support provided to communities around ENNR, and attempt to provide all support though the Conservation Agreement framework

6. Research and bio-monitoring will be encouraged
7. ENNR should support conservation education in local schools
8. Management will be improved by clear objectives and the means to deliver them
9. Realistic plans for the identification of potential tourism values / developments

7 RESOURCE MANAGEMENT

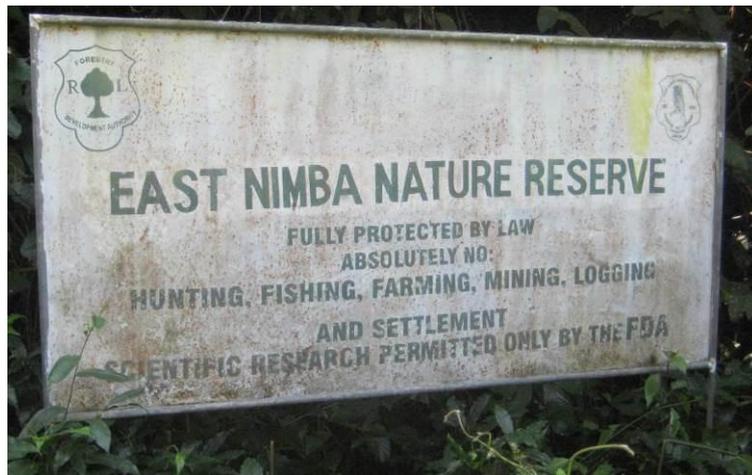
7.1 GENERAL MANAGEMENT POLICY

Chapter 5 described official policies in detail. These may be summarized as follows:

1. The Nimba Mountains are internationally recognized for their high biodiversity and need strict protection;
2. ENNR must be protected and conserved quickly, efficiently and wisely, and
3. ENNR should contribute to the socio-economic, scientific and educational welfare of Liberia and be managed for conservation.

7.2 BOUNDARY DEMARCATION

The boundary has been cut through the forest by FDA/CMC and is still visible to those people who know where to look. The boundary is a cutline about 2 metres (or 6ft) wide. It is more visible under primary forest. In secondary forest it is often very overgrown and hard to find. There are currently only two signboards on the boundary (one near Coldwater and one on the road to Blue Lake):



The current sign on the ENNR boundary.

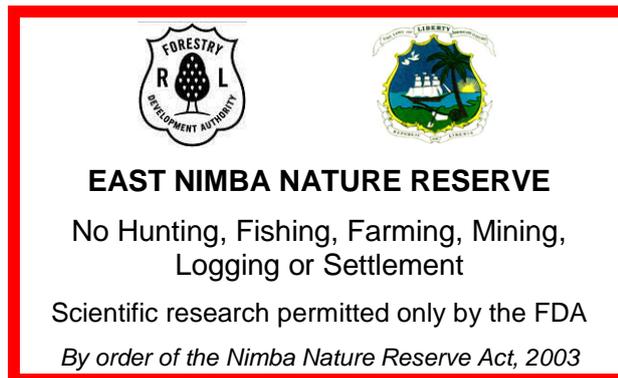
Policy

1. The boundary of ENNR must be clearly demarcated with a clean cutline, with signs at 1km intervals and numbered concrete pillars at the turning points.
2. The legal boundary description must be updated to match the situation on the ground.

Action plan – Demarcation

1. A 6ft/2-metre wide strip should be cleared each year, 1 metre on each side of pillar starting with the drier areas in December to March by cutting the vegetation close to the ground and by pulling out roots where possible.
2. Any big trees that have fallen across the boundary should be cut and removed so that people can easily walk along the boundary.

3. Metal signboards should be made and fixed on the boundary at intervals of about 1km. The signs should be planted wherever a path crosses the boundary. A draft design is provided below.
4. It is proposed that bright red non-toxic paint should be applied to trees at intervals of about 20 metres, so that the boundary can still be found even if it is overgrown.
5. Law Enforcement Rangers should patrol the boundary regularly (about once a month) and report any missing or damaged signs and pillars or encroachment or other illegal activities.



Example boundary sign for ENNR; final sign design and text to be developed under the first plan period (5 years)

It is suggested by CMC that there should be a picture of a gun, with a cross through it to show there is “No hunting” for people who cannot read; although following this logic, all forbidden activities should be accompanied by a symbol or pictogram

It is proposed that the signs should be 75cm wide by 50cm high, mounted on steel poles 3 metres tall. A hole should be dug at least 60cms deep, and the pole should be fixed in concrete.

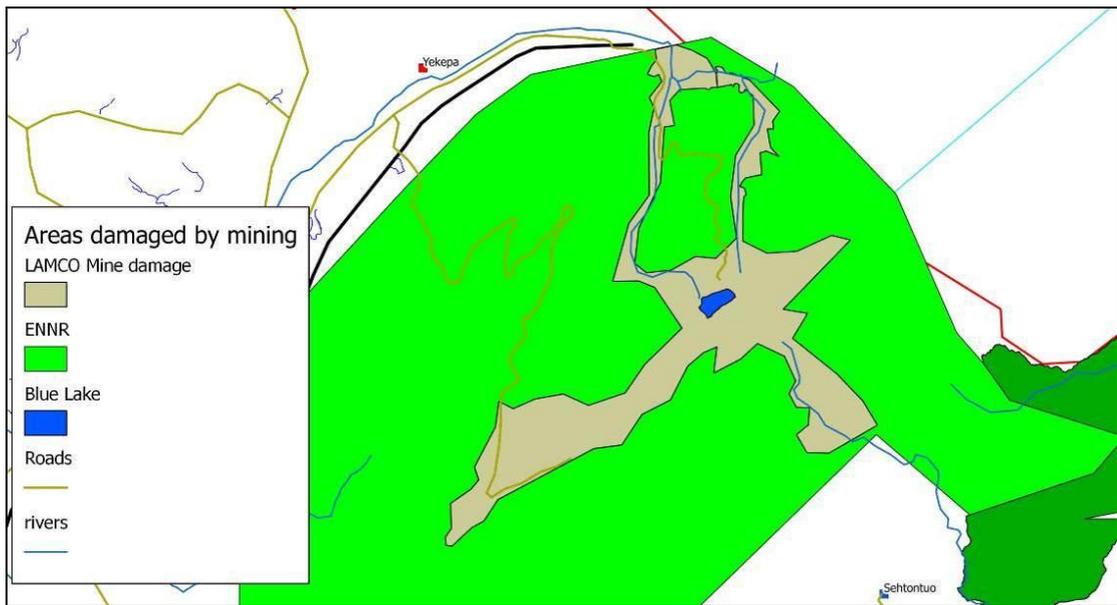
7.3 LANDSCAPE MANAGEMENT

Two aspects of the vegetation / landscape of ENNR need particular attention. These are habitat restoration of the previous, no longer operational LAMCO mine area, and fire, especially the mountain scrub and savanna areas.

During the life of the management plan, specific management interventions should be identified, in line with conservation priorities of ENNR and the wider Tripartite Nimba Massif plan, for each habitat type and or management zone.

7.3.1 HABITAT RESTORATION

The map below shows the area that has been most severely damaged by the old LAMCO mine. (See description at Section 4.5.3). About 10% of ENNR is affected (11km² 1,100ha; 2,720 acres).



Map showing the area damaged by the former LAMCO mine.

The LAMCO mine resulted in complete clearance of vegetation and soil and excavation of the mountainside for iron ore extraction. This has resulted in an area characterized by artificial, engineered features with pioneer vegetation dominated by grassland and scrub. There is abandoned machinery and infrastructure and also landslides in this area which have affected vegetation cover and the landscape¹¹.



A mined mountainside, with a ruined building



Landslides are still common

¹¹ AML/Scott Wilson, 2010: Western Range DSO Iron Ore Project, Volume 3, Part 6: Landscape Character and Visual Amenity Assessment



Natural forest, in an un-mined area

The damage is permanent. It will not be possible to reproduce the forest that was there before, but it may be possible to increase the number and diversity of trees compared with the present bare situation. Trees will produce leaf litter, which will gradually create some basic soil. This will take a very long time, but eventually the former mine site could support more plant and animal life than it does at present.

Although LAMCO was responsible for the environmental damage the company no longer exists, so cannot help. Fortunately AML is using the Blue Lake area for trials in readiness for habitat restoration at their other mine sites. They hope to find the best method for producing re-vegetation of mined lands, as they will be obliged to undertake restoration at the end of their mining operation. They are testing different species and different planting methods. Species include fast growing legumes such as *Piptadeniastrum africanum*, *Albizia ferruginea*, *Albizia zygia* (common tree in secondary forest), *Albizia adiantholia* (common tree of disturbed forest) and fast-growing pioneer species (e.g. *Ceiba pentandra*) to plant at the trial sites.

Early results suggest that ***Ceiba pentandra*** does best in mined areas. If habitat restoration is carried out, it will be important to remember that the highest and steepest parts of the former mine were natural grassland, not forest.

Policy

Actively seek the best method of habitat restoration

Action plan

1. Support / observe AML's research to find the best methods for habitat restoration
2. When the experimental plots have provided results design a funding proposal to carry out restoration.
3. Design new action plan as a part of the proposal

7.3.2 FIRE MANAGEMENT



GSM towers and buildings

There have been fires in the savannah grass on the mountain tops in the dry season.

In 2007 there was a fire that took weeks to go out – it was not limited to the grassland and some old trees were also destroyed. The fires are thought to have been started by the men who live at the GSM towers. FDA staff have tried to educate the GSM staff, but it is suggested that they persist in breaking the laws of ENNR.

The current plan is for the MD of FDA to write formally to the MD of Cellcom to show that FDA/CMC is serious about the need to obey the law. It is thought that fires have also started by hunters.

There have been no known cases of fires spreading out of villages or farms, into the reserve. The CMC staff do not have the manpower or the equipment to fight large fires, but under the lifetime of this plan it is realistic to expect FDA to develop the capacity to be able to fight small fires and/or those in the very early stages.

Policy

Education and awareness are the best means of preventing fire.

Action plan

1. Ensure that awareness about fire is always a part of community sensitization.
2. Follow up to ensure letter written from FDA to GSM company.
3. Enforce the law if illegal activities continue.
4. Procure basic firefighting equipment for all ranger stations, rangers and CMC auxiliaries
5. Provide basic training on fire prevention and firefighting to FDA, CMC / auxiliaries and GSM tower workers

7.3.3 ALIEN PLANT SPECIES

Chromolaena odorata (or "Doe leaf") is a very common alien plant species that invades cleared areas and farms. However, in ENNR it is not a serious problem as it is soon replaced by natural succession when secondary forest develops. It is so well established throughout tropical Africa that it could not be controlled in the reserve alone as it would soon re-colonize from outside.

A potentially more serious threat is posed by the introduction of acacia (***Acacia magum***) into ENNR. To date it would appear that this tree has not been introduced and it should be a management priority to ensure that local communities and/or external (e.g. NGO) efforts to improve local livelihoods do not bring this species into or near ENNR.

Policy

1. Invasive alien plants should be destroyed by the most effective method, preferably before they become a serious problem.
2. *Chromolaena* could only be controlled if there is an international campaign to destroy it. It cannot be eradicated in ENNR as it would re-invade from outside.

Action plan

1. Raise awareness with other stakeholders regarding acacia
2. Ensure that alien species are added to monitoring protocols
3. Take action (eradicate) if and when required

7.4 WILDLIFE MANAGEMENT

The wildlife of ENNR needs protection from illegal (all) hunters and the prevention of habitat loss, by logging or encroachment of farms, and NTFP collection.

Policy

ENNR's wildlife only needs protection from illegal activities.

Action plan

Law enforcement is described in Chapter 11.

7.4.1 HUMAN-WILDLIFE CONFLICT

Human-wildlife conflict (HWC) is an important issue for FDA and effective advice must be given. FDA has a policy of trying to ensure that people's livelihoods are not adversely affected by protected areas so must do whatever it can to reduce conflict. It should be regularly communicated to the local communities that wildlife does not know where the reserve boundary is.

It is reported that:

- There are minor problems with chimps in Kpolay, which are said to damage/eat crops of bananas, plantains and cocoa.
- Buffalos sometimes scare people.
- The most important problem mammal is the 'Groundhog' (cane rat), and squirrels and porcupines but these are not protected and people may hunt and trap them outside of ENNR.
- Rice birds (village weavers) are a pest of rice so rice farmers normally scare birds away by noise and by throwing stones. "Flashy tape"¹² is also effective.
- There have also been records of HWC around Zor, involving protected species

Policies

1. It is a policy that people's livelihoods should not be adversely affected
2. It is therefore right that people should be able to take appropriate action against so-called "pest" species in crop production areas, **IF** they are not protected by law
3. Protected species should never be killed
4. ENNR needs to investigate and address (plan for) HWC issues.

Action plan

1. Undertake community consultation and data collection (specific HWC surveys) to develop a plan of action (list of HWC issues, hotspots and context specific mitigation measures (e.g. fences, changes in cropping, land use planning etc.))
2. Some initial advice / actions (while we undertake the action above), include:
 - In the case of chimps (raiding farms), advise people against farming close to the boundary, and against planting bananas, plantains and cocoa.
 - Advise farmers that they may take action against common "pests" (non-protected species) to protect their crops. **Note:** Pests need to be defined for the community
 - Advise people to take action to keep animals out of their farms. Sometimes simple fences can be effective (and other measures will be explored – see top).
 - Advise people not to feed primates – as it encourages them to steal food and crops.
 - Build HWC into the emerging Grievance Mechanism, and investigate any allegations of serious damage by animals and make a report for the NR Warden

¹² "Flashy Tape" is provided by LACE (Liberia Agency for Community Empowerment)

- NEVER suggest that compensation could be offered. Losses due to “pest” species are natural and most of them are found outside reserves as well inside it.

7.5 DOMESTIC ANIMALS, REINTRODUCTION & DISEASE CONTROL

7.5.1 Domestic Animals

Fortunately there have been hardly any instances of domestic animals straying into the reserve. A small number of cows once entered from Yekepa but were soon removed.

Policy

Domestic animals (e.g. cows, sheep, goats, pigs, chickens, and ducks) are not permitted in the reserve.

Action plan

1. Staff should be observant for signs of the presence of domestic animals in ENNR.
2. If there are signs (e.g. sightings, footprints, dung) they should be investigated and the owners found and warned not to allow their animals to enter the reserve.
3. If the problem continues the law should be enforced; including the removal of ‘problem’ animals if necessary/as a last resort

7.5.2 Introductions and Re-Introductions

There have been no known introductions or re-introductions of wildlife to date. However, there is a risk that people working on the mines may have purchased wildlife species (often these are primates) as pets. Then at the end of their contracts they wonder what to do with their pet, and might decide to release it back “into the wild” in ENNR. This is illegal (under current laws/regulations) and not desirable. There is a risk that an introduced animal may not be native to the area, or could be diseased, and it is very likely that it would not be accepted by the other wildlife and would die. It is better if such animals remain in captivity or are destroyed.

It is possible that in the future there could be an organized program to reintroduce an extirpated species. This should be done only by experts in the field, in full compliance with the latest IUCN guidelines on the subject. There must first be very careful assessment of the advantages, disadvantages and risks. Some bats are to be moved from Mount Tokadeh where their habitat will be destroyed, to ENNR.

Policy

1. Introductions of native wildlife pets or alien species must never be permitted.
2. Re-introduction of extirpated¹³ species may only be considered after expert analysis

Action plan

1. Support transfer of bats by AML from new mine at Tokadeh, to ENNR.
2. Advise AML that the possession by staff of wild animals as pets is not permitted.
3. Monitor the situation and enforce the law if wild animals are being kept as pets without correct permits.

¹³ Extirpated means “locally extinct”

7.5.3 Diseased, Injured and Abandoned Animals

Occasionally animals may be found in the reserve that appear to be diseased, injured or abandoned (orphaned).

Policy

If such animals are found, they should be left alone. ENNR is a Nature Reserve, not a zoo or farm. Let nature takes its natural course.

7.6 UTILIZATION OF BIOLOGICAL PRODUCTS

It has been agreed at the Ganta Workshop on April 26, 2013, that there shall be no attempts to collect NTFPs or other products for a period of five years. It should be noted here that collection of NTFPs is illegal inside the NR will not be permitted. The ENNR Act 2003 states that no NTFPs or other products may be gathered in the reserve.

Policy

There is to be no gathering of NTFPs or hunting of fishing, under lifetime of this plan or at any time in the future, unless for CMC approved scientific purposes.

Action plan

1. Communicate this policy with the CMC members, auxiliaries and the wider community

7.7 ABANDONED MINE EQUIPMENT

In the former LAMCO mining area there are hundreds of pieces of equipment. These include mining shovels, huge mine trucks, bulldozers railway track and many buildings. These vehicles and buildings are potentially dangerous, and may be polluting the environment. There are some big pieces of equipment under water in the lake.

Nimba County Administration is currently organizing a tender so that scrap metal dealers can bid for these items. It is hoped that all the steel items will be wanted and will be bought, cut up, and removed by dealers. When that process is complete it will be necessary to review what is still left. [If there are some scrap metal items which have insufficient value and have not been bought it might be necessary to offer them to dealers free of charge]



One of many old pieces of mining equipment



A mined mountainside, with a ruined building

Policy

ENNR will facilitate removal of all mining equipment, and will seek demolition of abandoned buildings

Action plan

1. Produce an action plan for building demolition and scrap metal removal (leaving at least one example behind for historical and touristic values).
2. Brief scrap dealers before they start to remove anything, to tell them to respect the environment, including not start (grass) fires and not to leave rubbish behind.
3. Monitor the cutting and removal of scrap metal, including EIA process, to ensure that all activities avoid negative environmental impacts
4. When that process is complete, produce an inventory of what is still left.

7.8 WATER POLLUTION

Mining activities have resulted in serious pollution of some rivers and water bodies.



River Yeahn polluted with LAMCO mine sediment near Sehtontuo



The Blue Lake

At the time when the previous mine was operational there was much less concern for (and understanding of) environmental impacts than there is today. To make matters worse, the mine was not closed down in any organized way but was abandoned in 1989 as a result of the mine's economic collapse and the start of the civil war.

Streams and rivers that flow from the area of the LAMCO mine (such as the Seka and the Yeahn) are highly polluted. This affects some rivers that would be used by communities outside the reserve, and biological habitats inside ENNR. The Blue Lake may look attractive, but it is polluted, and it seems that fish cannot live in it. Mine sediment gets into streams and rivers from landslides and erosion from mine surfaces, erosion of stream channels and material washed out of waste dumps. Groundwater, rivers and habitats can all be polluted significantly from spills and leakages from a variety of toxic or hazardous substances. Sehtontuo and Dulay both moved to their current locations to get away from pollution.

In modern mining great care is taken to reduce impacts to acceptable levels with investment from the start in the control of materials and the design, construction and maintenance of protective structures. This was not done at the time of the LAMCO mining operation and now it is too late. The cost of cleaning up the site would be huge.

Policy

Habitat restoration may be able will gradually reduce the pollution from the old mine, although this is not guaranteed or uniformly true, and should be explored

Action plan

1. Where possible, investigate options to mitigate water pollution from past mining operations
2. Communicate/work with AML to ensure that no new water pollution takes places with the Nimba landscape

7.9 HISTORICAL SITES

There are no known sites of historical or archaeological importance in ENNR with the possible exception of some caves, (e.g. near Geipa, Grassfield and Coldwater) which *might* have been used in ancient times.

7.10 MINERAL PROSPECTING AND MINING

The Forestry Reform Act of 2006 makes it clear that that mineral prospecting and mining is not allowed in Protected Areas unless authority has been given in accordance with the guidelines that are quoted in Section 5.5.1. It is encouraging to note that the Blei Community Forest successfully prevented mineral prospecting in their forest.

The Reserve Warden and other staff should be vigilant and should not allow any prospecting or mining (including artisanal mining) in the reserve.

To date there has been no known attempt to do artisanal mining in ENNR.

Policy

Mining or all kinds is prohibited inside ENNR

Action plan

1. NR law enforcement/patrols need to be aware and vigilante to risk of illegal mining; a contingency plan should be developed for removing miners/camps

7.11 ENVIRONMENTAL IMPACT ASSESSMENTS

The old mine site shows very clearly why Environmental Impact Assessments (EIAs) are so important. EIAs measure the effect of proposed developments on the environment. It is to be hoped that no major physical developments will be allowed in the reserve. However, if developments are proposed there should be independent EIAs for any major private sector, Government or donor-funded development in the reserve. The developer should pay for the EIA, which should be checked by EPA/FDA. The development should only go ahead if the EIA concludes that any impact is acceptable and the recommended mitigation measures are followed. "Due Diligence" is also necessary to check that a proposed development will be able to meet its objectives.

Policy

EIAs must be conducted for all proposed developments (trails, roads and buildings, etc.) in the reserve to ensure that any necessary environmental safeguards are adopted.

Action plan

1. Require that EIAs to be carried out for any physical / infrastructure developments in the reserve.
2. If the EIA is satisfactory subject to mitigation measures, those measures must be specified in any lease or permit.
3. EPA & FDA will monitor the situation to ensure compliance.
4. Specifically for any tourism development, an Environmental and Social Impact Assessment (ESIA)

7.12 Climate Change Adaptation

West Africa is highly dependent on agriculture and very vulnerable to climate change. This is because the climate was already very variable, and many people rely on rain-fed agriculture. Farmers have limited capacity to adapt to climatic change but will have to adapt to changing conditions. It is uncertain how climate change will affect the local climate and agriculture. There is already a belief that the dry season is getting shorter and the annual rainfall is increasing. Any negative impact to local farming is not only a social/livelihood issue, but could also impact upon ENNR. If local people cannot get enough food from their land, they will be incentivized to encroach and/or hunt inside the NR.

Climate change will present additional threats to biodiversity conservation. Primarily, changing climatic conditions may result in shifting habitats and the need for species to move or migrate; but that may not be possible due to the geographical features and limits, resulting in increased stress, higher competition and potentially extirpation. .

Policy

To be aware of the effects of climate change, and to adapt as appropriate.

Action plan¹⁴

1. Investigate possible impact of climate change on ENNR function and management
2. Provide information from (1.) to government agencies and stakeholders
3. Give support to make informed decisions on resource management and conservation
4. Prepare a climate change adaptation plan to advise on what to do.

¹⁴ It is advised that this is undertaken, where possible, with involvement and support of ENNR partners: AML, CI and FFI

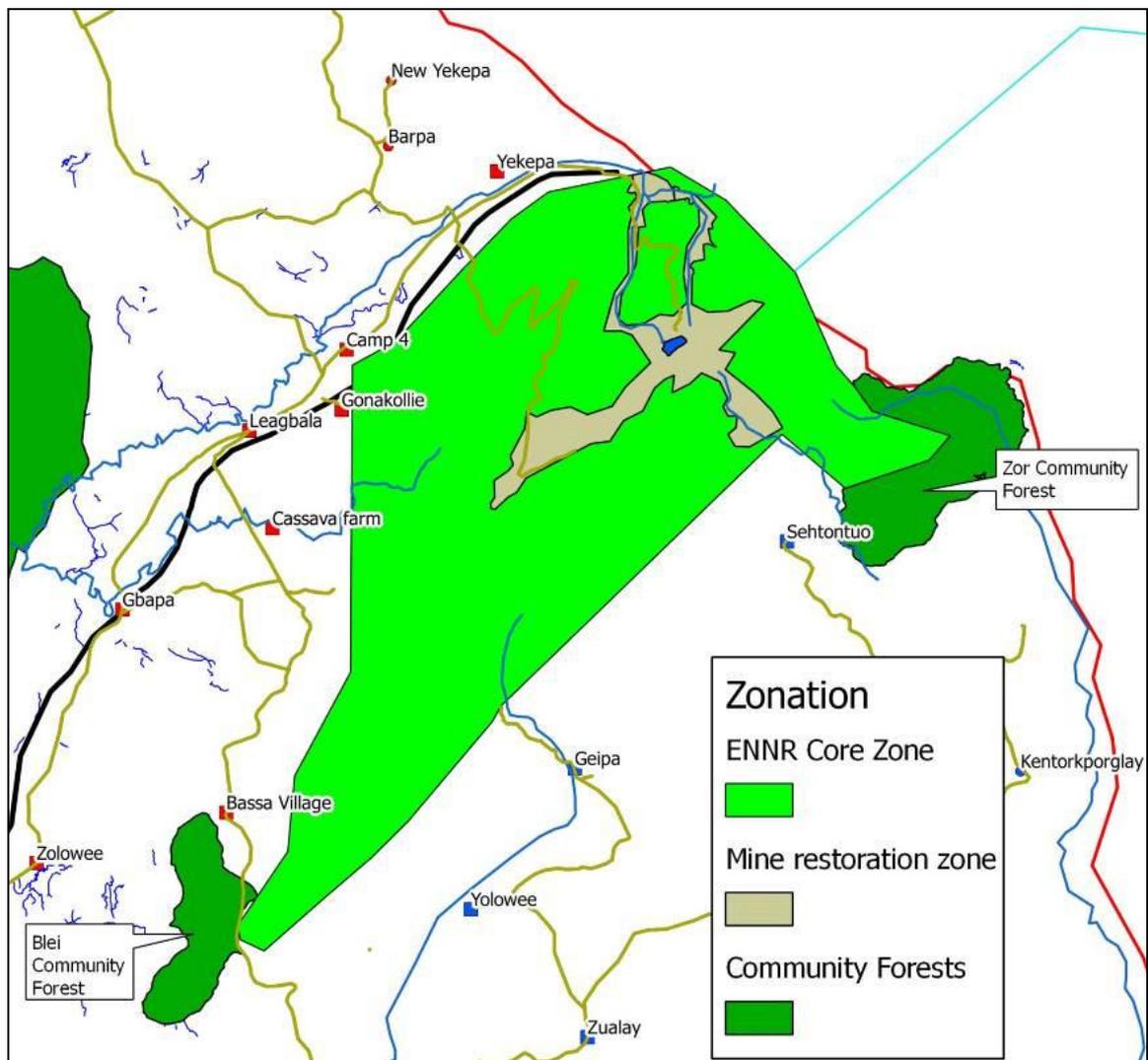
8 ZONATION OF THE RESERVE

8.1 CORE ZONE

Most of the Reserve will be managed in the same way for the protection of wildlife and forest with minimum intervention except law enforcement and monitoring.

Policies.

1. All the Reserve will be managed for conservation.
2. Tourists may visit any part of the Reserve unless a research project requests that there should be no disturbance in a particular area for a certain period.



Zonation map

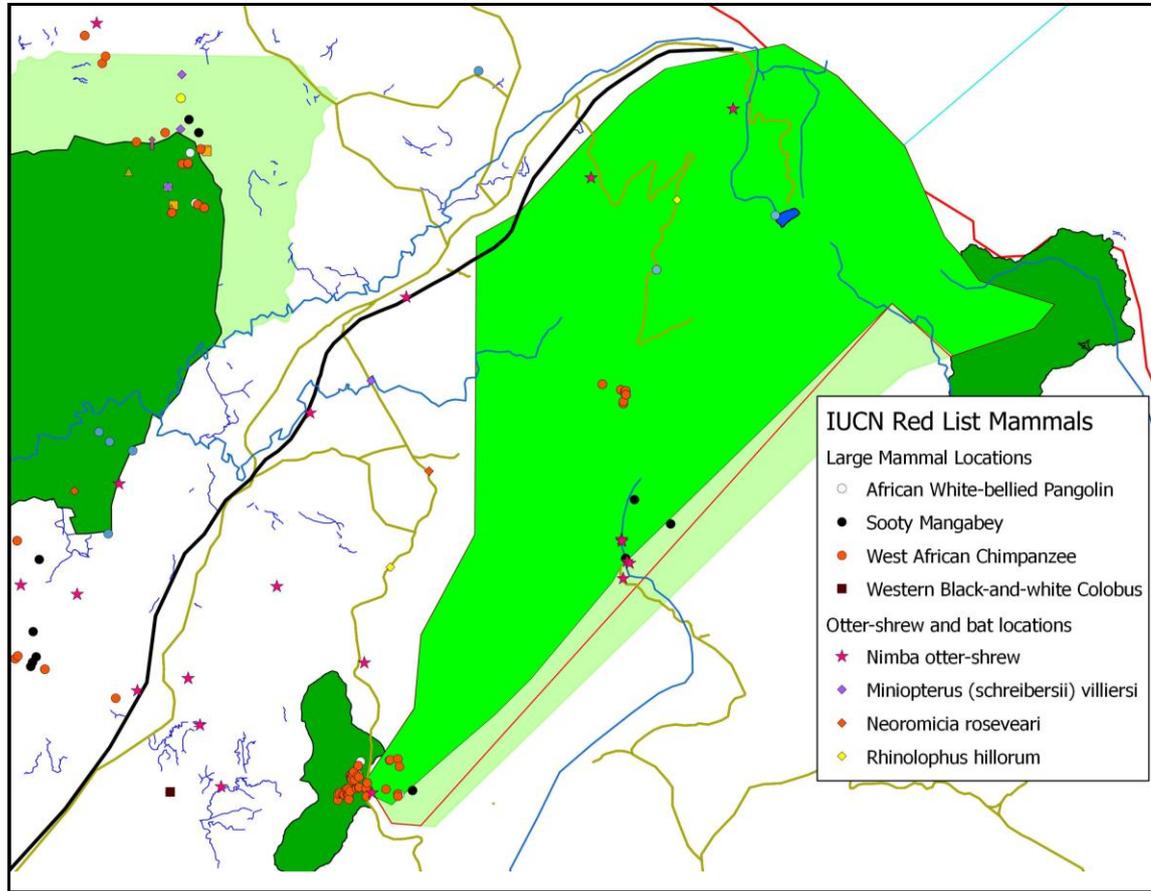
8.1.1 BIODIVERSITY HOTSPOTS

Research has shown that the wildlife is not uniformly distributed. It is however thought that some areas (such as the southern tip of the reserve and the Blei Community Forest) have been more intensively studied than other areas and so appear to have more Red List species. It is interesting to note that many rare species (of mammals,

birds, trees, bats and others) have been observed in the same few locations, which are all places with adequate road access.

A map of mammal distribution is provided below. Rare amphibians and crab species are also found in the southern tip of the reserve, and Blei forest.

These high conservation value areas deserve special attention and frequent law enforcement patrols.



IUCN Red List (threatened) Mammals (survey records)

Policy

Known "Hotspots" should be patrolled frequently and thoroughly.

Action plan

1. Use data from patrols to find out which areas and species are most threatened.
2. Make sure that those areas are thoroughly patrolled.

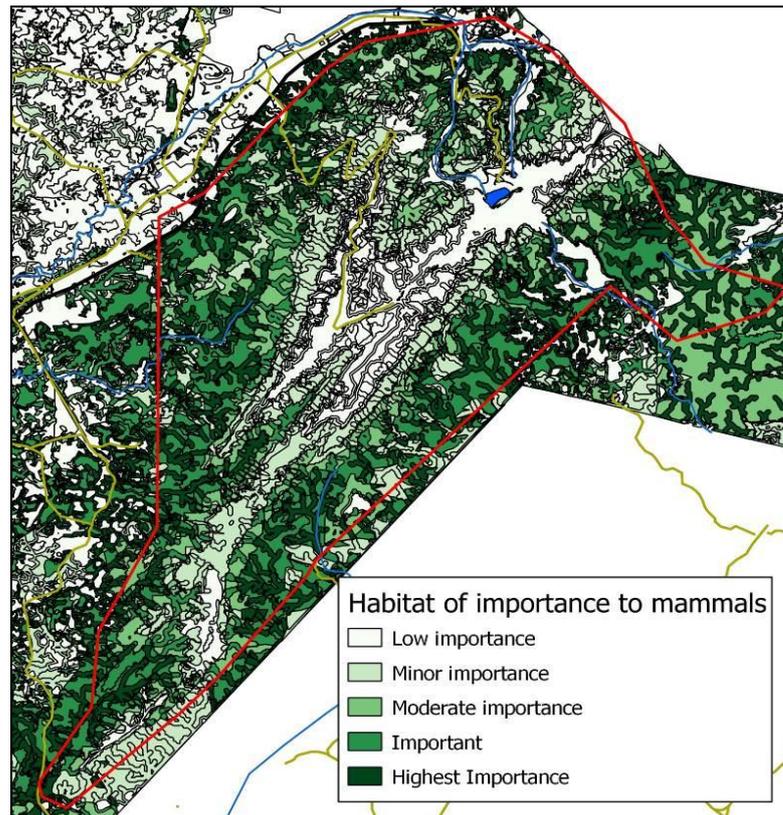
8.1.2 Habitats of potential importance

The situation is not as simple as it appears in the above map. That map shows actual observations made by specialists who have visited ENNR. They have tended to visit places where the access to the reserve is good, such as Coldwater, Geipa, Grassfield and the roads to the Cellcom tower and Blue Lake. Many of the distribution maps show that there are concentrations of rare species in these areas. It is thought that these places only appear to have higher concentrations of special species, because they have been studied with much greater intensity than the rest of the reserve.

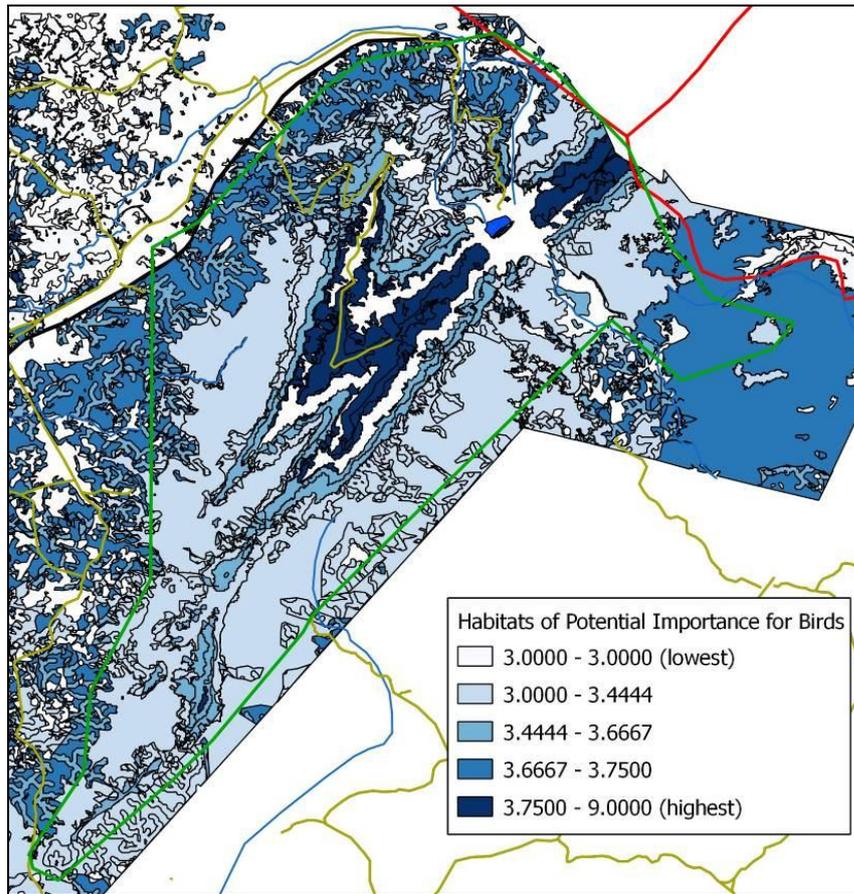
Much work has been done on the relative potential importance of different habitats for different types of wildlife. The lower parts of the reserve are most important for most large and small mammals and butterflies, but the higher ground is of great importance for many bird species (and, surprisingly perhaps) for crabs and some rare amphibians.

It should not be assumed that all areas with “low” values on the following maps have low value for conservation.

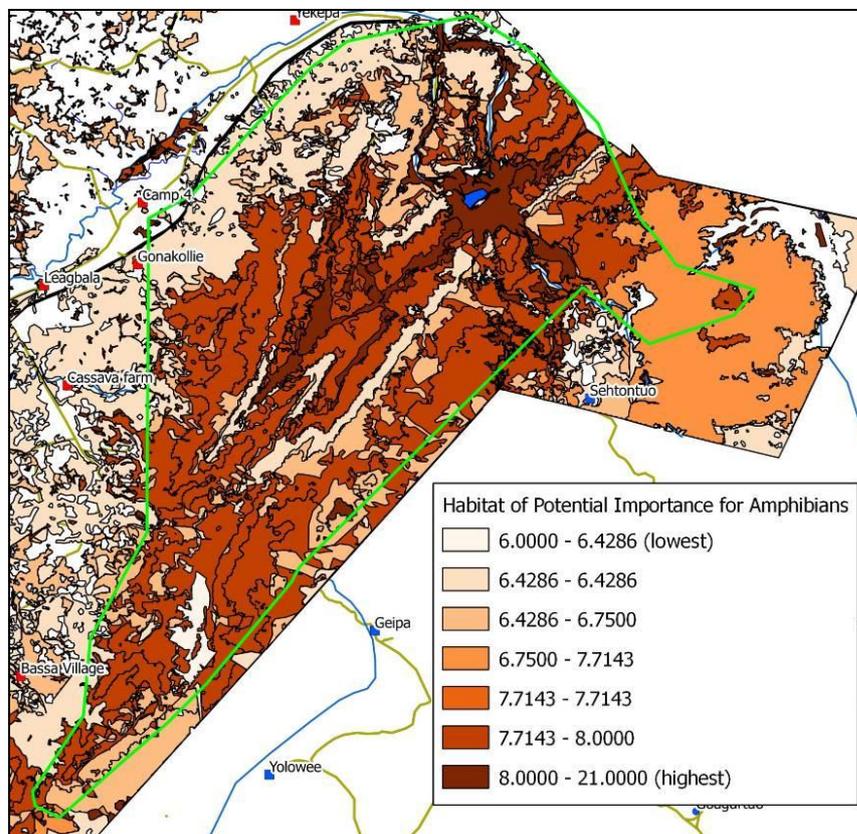
Thus **all of the reserve is important for some wildlife**, and even the areas affected by LAMCO mine appear to be of potential importance for amphibians.



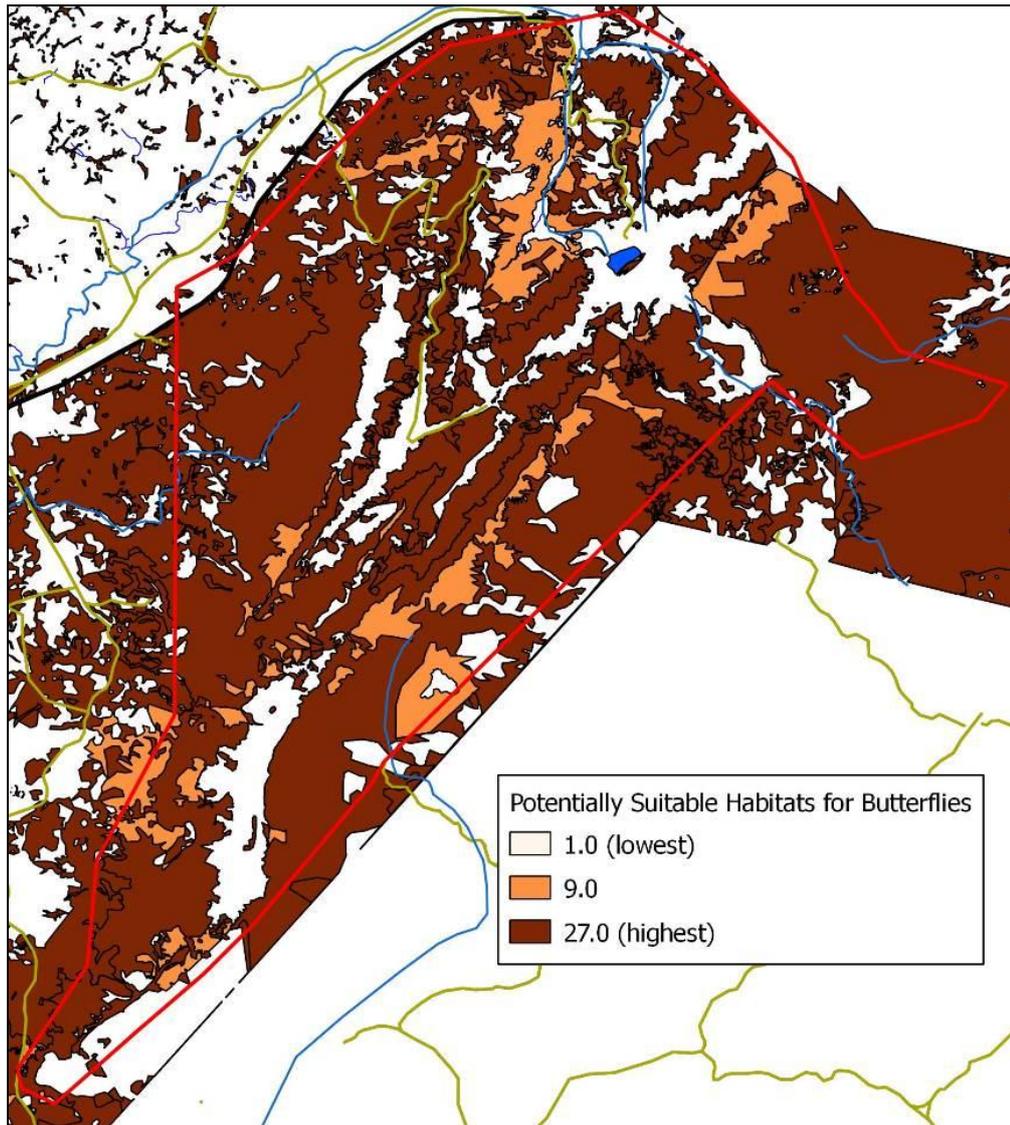
Habitats of potential importance for large & small mammals © AML



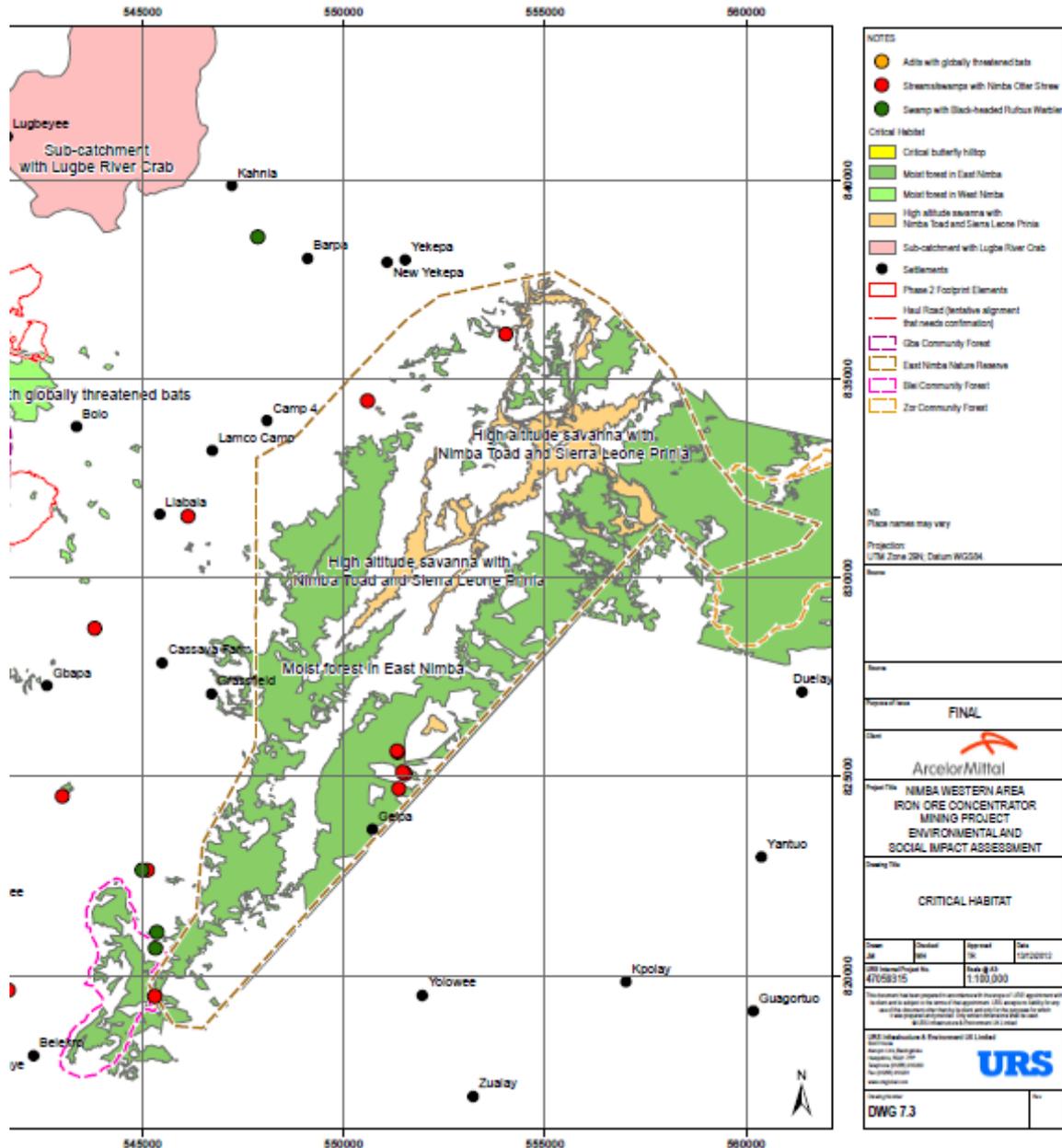
Habitats of potential importance for birds © AML



Habitats of potential importance for amphibians © AML



Habitats of potential importance for butterflies © AML



As per the maps above, ENNR has a number of key habitats already identified; including moist forests and high altitude savannah, which includes the location (habitat) of the Nimba toad. See below for action points on zoning.

8.2 OLD MINE RESTORATION ZONE

The land that has been damaged by the LAMCO mine needs special treatment, as we have seen in previous sections (7.3.1, 7.7 and 7.8)

8.3 BUFFER ZONE

The Wildlife and National Parks Act of 1988 states that a PA Management Plan should include “plans for the creation of buffer zones around the National Park or National Park or Nature Reserve” The 2006 Forestry Reform Law defines a Buffer Zone as: “A transitional zone (such as a Communal Forest, Game Reserve, or Multiple Sustainable

Use Reserve) surrounding a more strictly protected zone, intended for low-impact sustained human use to reduce the impact of outside human disturbance, to protect the boundaries from encroachment, and to preserve the natural state of the more strictly protected zone it surrounds.”

The possibility of establishing a Buffer Zone should be discussed with the communities during the consultation process. It is likely that in some areas (e.g. north of Camp 4) there will be little scope for a buffer zone, but in others there may still be land that could serve as community forest outside the reserve boundary.

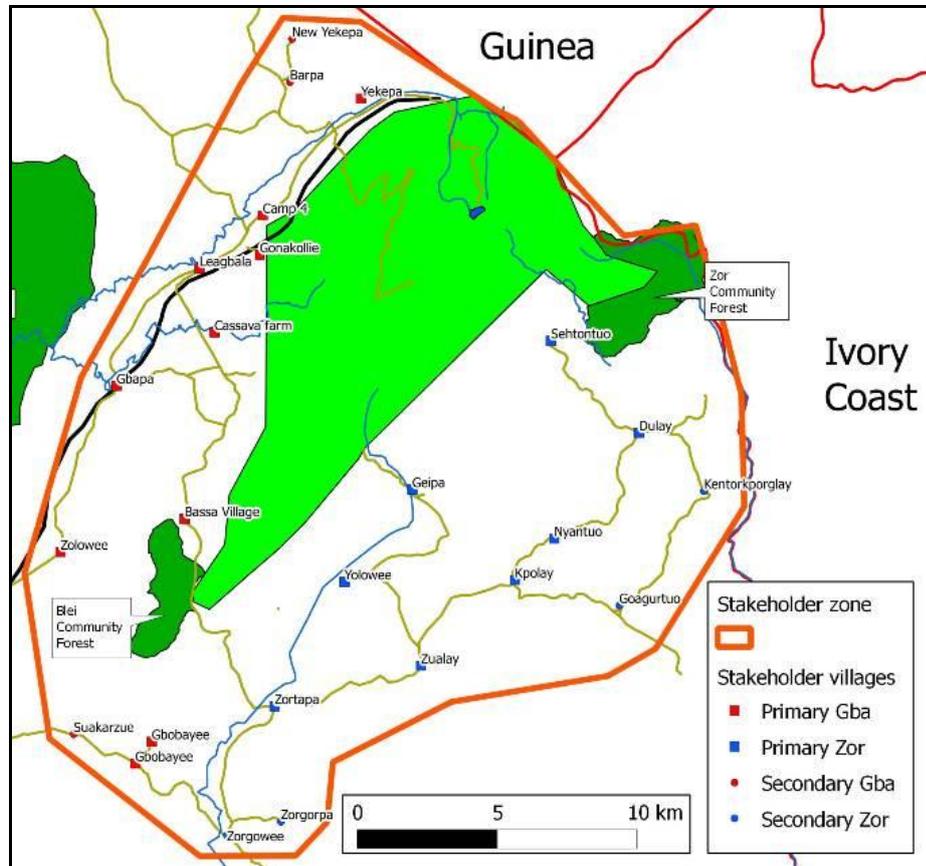
Policy

To be determined through consultation with CMC/communities.

A full bufferzone is unlikely due to the proximity of settlements in some areas. Instead, options for the expansion and establishment of new Community Forests should be explored, in addition to the provision of some forests areas, outside and contiguous to ENNR, to be set aside for conservation, as part of the conservation agreements. In this way, ENNR could achieve a de facto buffer zone. Sacred forest fragments, where these occur outside ENNR, for the Poro and Sande Societies, could also serve as part of this equivalent “buffer zone(s)”.

8.4 STAKEHOLDER ZONE

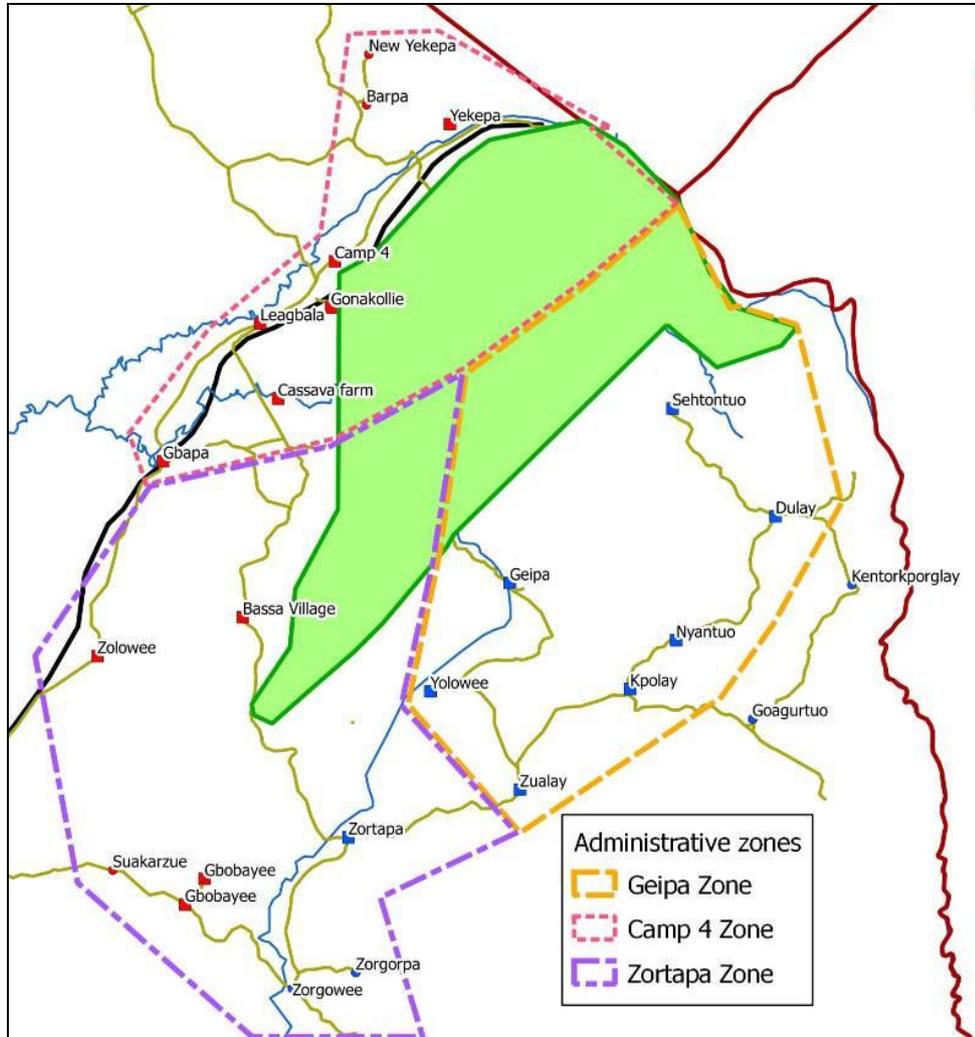
Various communities have been identified that were affected by the establishment of ENNR, and therefore deserving of support to reduce or mitigate negative impacts. These are described in Section 9.2. The map below shows the approximate extent of the zone, though it should be noted that not every community within the thick red line is designated for support. (There are other villages which are not marked on this map).



ENNR Support zone

8.5 ADMINISTRATIVE ZONES

There are also “Administrative zones” showing the areas that the Zortapa HQ, Camp 4, and Geipa Zone should cover. These Zones could be replaced by two Ranges when the new ENNR HQ is built on the western side. (See Section 15.1).



Administrative zones of the three camps (current)

Policy

ENNR zoning should support the conservation of biodiversity and should only be revised to improved said conservation effectiveness

Action Plan

1. Zoning must be recognised and enforced
2. Revisions to zoning should only be made to improve conservation efforts
3. Existing research findings and the data collected from forthcoming surveys and bio-monitoring should be used to identify key areas and/or habitats for targeted research and, above all, protection (see Section 8.1.1 above)

9 AFFECTED COMMUNITIES

East Nimba is the first protected area in Liberia to have a formal Co-Management Agreement which was signed in September 2010. Co-Management refers to the joint and shared management of the NR by FDA and the affected communities (see map above, Section 8.4 and map below, Section 9.2). It is between the FDA and the Community Administrations of Sehvi, Gba and Zor. The Co-Management Agreement developed from work by Land Right Community Forest Programme, implemented by Associates for Rural Development – LRCFP/ARD (now PROSPER), but now PROSPER concentrates on the Community Forests and is not directly involved with ENNR.

9.1 CO-MANAGEMENT POLICIES

The full policies of the CMC were given in Section 5.3. The key policies are:

- a) Promote the conservation of biodiversity in the ENNR and reduce threats;
- b) Share responsibilities regarding management of ENNR;
- c) Raise awareness and inform communities and about conservation;
- d) Support for improved livelihoods initiatives;
- e) Resolve conflicts that may arise, through consultation.

The working relationships of the CMC and FDA are still developing. It is expected that the CMC will concentrate on Public Relations and Awareness. The CMC will also be able to select workers for casual labor jobs, such as cleaning the boundary. The community members of the CMC are all local people and speak the local languages. The FDA staff are not all local – many have been transferred to ENNR from other parts of Liberia. The CMC should be able to observe and monitor the work of FDA

Action plan

1. A plan needs to be agreed that will specify how the community and FDA members of the CMC will operate; this will require a Terms of Reference for the CMC and workplan
2. It should say how tasks will be assigned – i.e. who will do what

9.2 AFFECTED COMMUNITIES

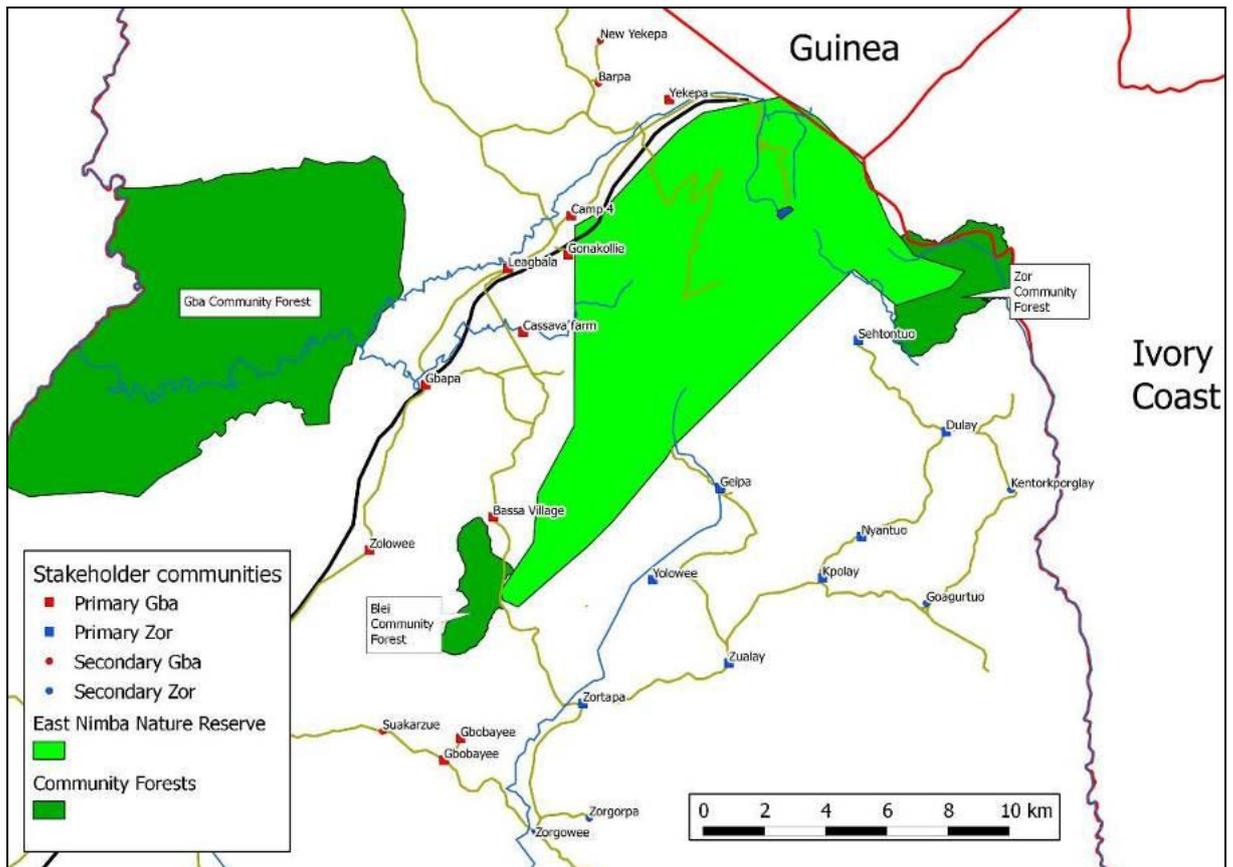
In October 2013 the CMC met and agreed on the criteria for how communities should be selected as stakeholders (affected communities). It should be noted that this is preliminary and can change over time.

- Closeness to the reserve
- Previous exploitation of the resources in the reserve
- The communities that previously used the reserve the most (forest dependency)
- Land tenure

There was also an agreement made on 25.10.13 in a meeting at **ArcelorMittal Office, Yekepa, Nimba County** with CMC and affected communities on which of the affected communities would be regarded as **primary** (most impacted) and **secondary** (less impacted), by ENNR, as follows:

Category	Criteria	Names	Commitment (under conservation Agreements)
Primary Zor	Farmland sharing common boundary with ENNR and majority of people using NR resources	Sehtontuo Geipa Zortapa Dulay Nyantuo Kpolay Zualay Yolowee	To ENNR
Gba Primary		Gbobayee Zolowee Gbapa Cassava Farm Yekepa Gonakollie Camp 4 Leagbala Bassa Village	
Zor Secondary	Further away; farmland not sharing common boundary with ENNR and minority using NR resources	Goagurtuo Kentorkporglay Zorgorpa Zorgowee	To local / community forest (CFs)
Gba secondary		New Yekepa Suakarzue Barpa	

The map below shows the currently agreed stakeholder communities.



Primary and Secondary Stakeholder communities

9.2.1 Socio-Economic Background of Nimba County

Nimba County is one of the most important counties in Liberia in terms of population, politics and exports. The civil war had a severe negative impact and most of the social services infrastructure was destroyed. This resulted in extreme vulnerability in terms of food security, health care and education. Even now the basic infrastructure remains in poor condition despite the efforts of local communities, government, UN and NGOs.

The mining of iron ore is very important for Liberia, being one of the biggest contributions to the national economy, and provides many jobs in Gba District. The economy of Nimba County is based on agriculture with palm oil and rubber being two of the major income sources, though there are less of these around ENNR.

Palm wine, soap and charcoal are also produced and there is small scale production of livestock including sheep, goats, pigs and some cows. The main crops are rice (including swamp rice), cassava and plantain.

9.2.2 Effect of ENNR on local communities

Some communities were farming inside the reserve when it was created and still have tree crops growing there. These include oil palm, avocado, cocoa and mango. These crops are adjacent to Camp 4, Gonakollie, and Geipa.

The law states that **no farming is allowed inside a NR**, however, these farmers will continue to harvest their tree crops, until some kind of alternative can be arranged, but they are not allowed to do any new planting or weeding. GPS coordinates will be taken of existing tree crop areas and this will be checked annually. Anyone found to have expanded their area of cultivation will have their crops destroyed.

Other communities used the area that is now the ENNR for hunting, fishing and for gathering NTFPs. All these activities are now illegal.

Policy

The harvesting of existing tree crops only, until there is an alternative. No planting, brushing, weeding and expansion.

Action plan

1. Set a target/deadline for the ending of all farming inside ENNR
2. Use local radio and the community consultation tour to inform all farmers that they must register any crop in the reserve with the CMC.
3. The nearest CMC staff records each farmer's village, name, and phone number
4. This information is given to the Reserve Warden
5. Reserve Warden will then organize for verification and assessment visit
6. During verification, record GPS position, and the quantity and type of the crop
7. Assess the amount of compensation due
8. Obtain the funds.
9. During payment of compensation, is that is possible/secured, the farmer must sign to say he has been compensated, and he should be photographed while signing and being paid.

9.2.3 Community impacts on ENNR

The use of NR resources, for livelihoods, is also an impact and a threat to ENNR. See Section 10.

9.3 CULTURAL VALUES

The population of Nimba County was about 735,000 in 2007. The Gio and the Mano are the two dominant ethnic groups although all 16 of Liberia's ethnic groups are present. Christianity is the main religion and Islam and the Baha'i Faith are also common. (Barpa is mostly Muslim). It is said that by day many people are Christian, but become traditional in the evenings. In Geipa they kill chickens every 2 months for traditional reasons. In the Mano regions they do not eat buffalos or pythons, while in Zor people do not gather or eat honey.

The traditional forest schools of Poro (men) and Sande (women) have scared masks, and these used to be kept in the ENNR but they are now kept outside in other 'special' areas of forest.

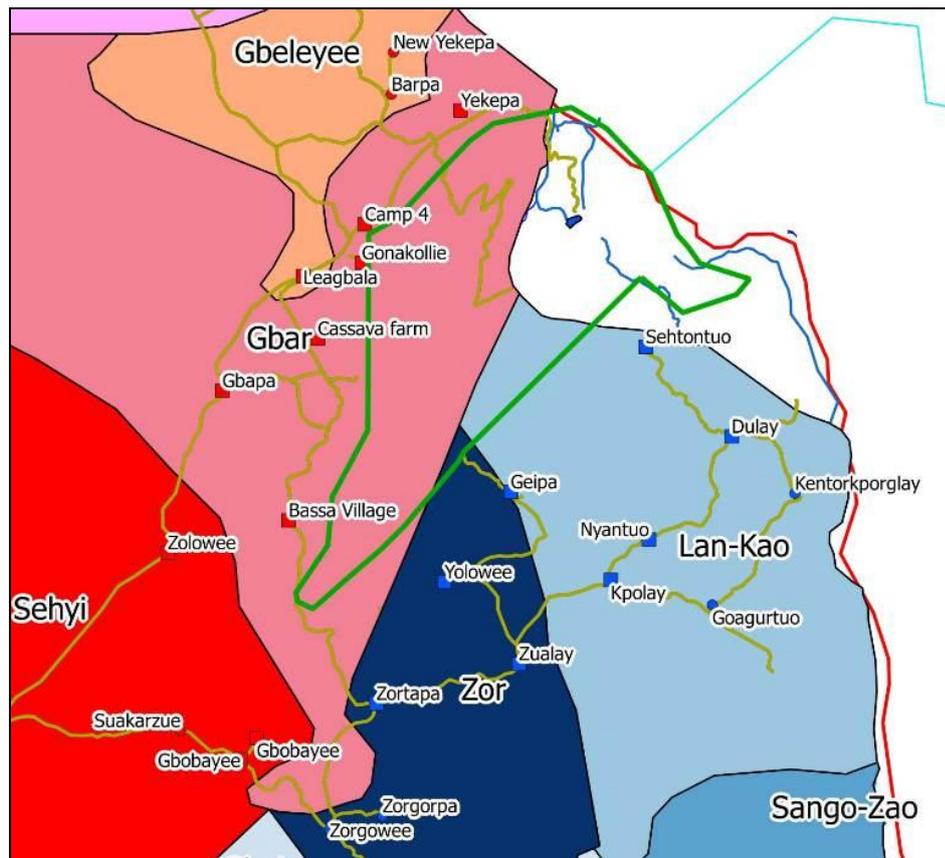
Policy

Ensure communities have access to the cultural services of ENNR while looking for alternatives, e.g. finding or moving sacred forests, outside of ENNR

Action Plan

1. Look for forest outside the ENNR which are protected by communities for cultural reasons; could these forest become part of a "buffer zone"?
2. Explore options of moving sacred forests to CFs or other forest areas, with support/facilitation of ENNR
3. Undertake a study on integrating cultural values with conservation, in and around ENNR

9.3.1 Clan Areas around ENNR



9.4 CONSERVATION AGREEMENTS

Conservation Agreements (CAs)¹⁵ offer direct economic benefits to the stakeholder communities in exchange for commitment and actions (performance) to stop illegal activities in the ENNR. The CAs are funded by AML and delivered through NGO partners. It is important to recognize that CAs are an attempt to reduce/mitigate negative social impacts of ENNR, and to incentivise conservation oriented behaviours, but they are not a method or means to address all and every impact on an individual basis. The CAs around ENNR will include the following:

The Parties and their responsibilities

The stakeholder community agrees to support conservation and stop destructive activities, and the donor/implementer agrees to provide various benefits as incentive to support conservation and to compensate for loss of access to forest resources. A CA can include other parties, e.g. FDA might be responsible for monitoring activities.

Conservation commitments

The Agreement records what the stakeholders will do to support conservation. For example they might stop hunting, to stop NTFP collection, stop charcoal burning or farming in the reserve, depending on what they are currently doing. They might agree to do positive conservation activities too, such as assisting with patrols. It is essential that the stakeholders are serious about their commitments.

¹⁵ This section is derived from Niesten, *et al* (2010): *Conservation agreements as a tool to generate direct incentives for biodiversity conservation*.

Benefits

In return for specific conservation commitments and then performance (compliance), AML/CI will provide stated benefits, but this therefore requires monitoring of impacts and performance. These benefits should attempt to match the value of the things that the community has “lost” – e.g. income reduced by not hunting and the value of any conservation actions (e.g. time spent patrolling). Benefits are usually support for livelihoods. It is important to try to ensure that the people who have lost income are among those who benefit, to achieve broad-based community support. If possible the benefits should help to reduce pressure on ENNR e.g. reduce forest loss from shifting cultivation by helping to improve production from farms on permanent plots.

Penalties for non-compliance

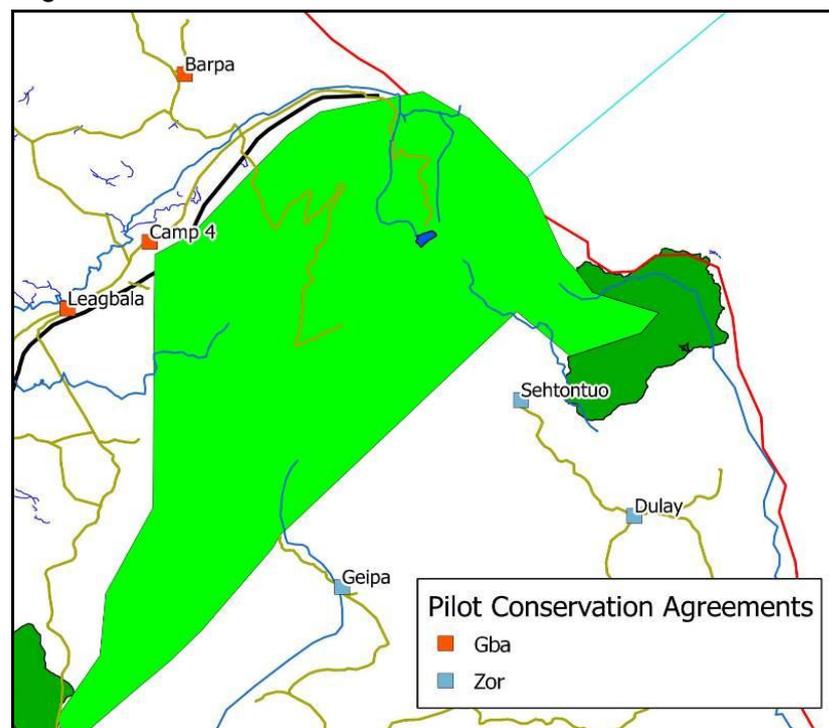
The communities must keep their commitment in order to receive this performance-based benefits and incentive. If they don't, the benefits will be reduced. The communities themselves propose the penalties in advance, when the agreement is being written. If an agreement is broken there is a gradual, temporary reduction in benefits. When the community improves its behavior the full benefit package is restored. An Agreement can be ended if the community continues to break its rules.

Performance monitoring

As benefits depend on the community keeping to its side of the agreement, there must be monitoring. This monitoring often encourages improved, conservation orientated behavior. This means that it must be possible to monitor the implementation and performance of the community, and this must be planned from the start.

Finance

CAs need long-term finance if they are going to be successful. CI is securing CAs around the world by establishing dedicated trust funds, promoting government programs that fund agreement benefits, and exploring sources of funds. For ENNR it is likely that AML will be a crucial source of funds, i.e. in capitalizing the trust fund, in the medium to long term.



Six pilot Conservation Agreements

Current situation

CMC, CI and partners are developing Conservation Agreements in 6 pilot stakeholder communities. These communities were selected by a multi-stakeholder workshop. They are Sehtontuo, Geipa, and Dulay in Zor, and Gbapa, Camp 4 and Leagbala in Gba.

Policy

The policy is to incentivise communities to secure support for and participation in conservation of ENNR. The CAs should be the mechanisms to deliver **ALL** livelihood improvements, as a way to reduce negative social impacts of ENNR and provide incentives, through long-term Conservation Agreements and performance.

Action plan

- | | |
|---|---|
| <ol style="list-style-type: none"> 1. Work with NGO partners to support careful expansion of CA program 2. Ensure that all livelihood support around ENNR is delivered via CAs 3. Set up and carry out baseline surveys to show: <table border="1" data-bbox="363 763 1441 882"> <tr> <td> <ol style="list-style-type: none"> a. if livelihoods have been improved (output); and b. If biodiversity conservation has improved (outcome); and to see if there is any statistical link between the two </td> </tr> </table> | <ol style="list-style-type: none"> a. if livelihoods have been improved (output); and b. If biodiversity conservation has improved (outcome); and to see if there is any statistical link between the two |
| <ol style="list-style-type: none"> a. if livelihoods have been improved (output); and b. If biodiversity conservation has improved (outcome); and to see if there is any statistical link between the two | |
| <ol style="list-style-type: none"> 4. Support CI to avoid the problems described in the next section. 5. CMC should work with AML and NGO partners to develop a plan for monitoring CA implementation and impact, and then initiate that monitoring. This should include an investigation into the role that Environmental Protection Agency (EPA) could play in supporting this monitoring | |

9.5 SUPPORT FOR LIVELIHOODS

Protected Area managers and (PA Projects) often try to support local livelihoods – to reduce conflict, reduce illegal activity and, for ethical reasons, try to ensure that PAs minimize negative impacts on local communities (who are often poor and faced with the biggest impact to their livelihoods). ENNR and its partners will try to support local livelihoods, to reduce negative impacts and maximize incentives (towards conservation outcomes), through the CAs – see above, and below.

9.5.1 The Problems of “Alternative” Livelihoods

Experience has shown that “Alternative” Livelihood initiatives often fail or are not sustainable over a long period. The NR/CMC and partners must avoid repeating previous mistakes and learning from previous lessons, as summarized below:

- Livelihood support often only operates for the lifetime of a project, while there are still cheap or even free inputs and technical support, and quickly fails when this is no longer available.
- Frequently the support for livelihoods is driven by a project and supported by temporary specialists but is not a part of the core business of FDA, so there is inadequate buy-in by government.
- Even when support for livelihoods has been successful, and has been adopted by the local communities, there are sometimes “unintended consequences”, in direct opposition to the original objectives of reducing reliance on natural resources.

- There may be considerable resistance by people to adopt unfamiliar activities. This can be because of the risk of starting a new activity in an environment where they have few economic buffers.
- The people who take up the new livelihood ideas may not be the people who are most affected by the protected area. They may already be small business people who are more open to new money-making ideas.
- The new activity may simply not be financially viable. E.g. soap making in rural areas, where the product costs more than soap that is already commercially available, and is less effective. Or cane rat production, where the domesticated cane rat costs more than wild cane rat.

These are just a few of the issues associated with many livelihood approaches – there are more that could be listed, but the above gives a flavor of the difficulty of making meaningful improvements to people’s lives.

9.5.2 An Improved Approach to Livelihoods

The previous section has shown that there are many problems with “alternative livelihoods”. We recognize that it will not be easy, and we are trying to learn these lessons, which lead to the following suggested approaches:

- Follow the Ministry of Agriculture’s main initiatives, such as for improved rice production, using better varieties and better methods.
- Ensure that the right inputs are available at the right time (seed, fertilizer, tools & technical training).
- Ensure “Visibility” – it is very important to ensure that communities know that the support for livelihoods is coming because of ENNR.
- Avoid use of the term “alternative” livelihoods but rather ‘strengthening’. Also “Benefit sharing” should be another term for livelihoods support.
- Employ a long-term specialist in Agriculture and Rural Development. This person does not need a conservation background. Recruit agricultural extension workers from the local communities and train them in extension techniques.
- Do not hope for “Quick Fixes”! Improving people’s lifestyles and livelihoods is never quick.

Policies

1. Support improved livelihoods for surrounding communities; but this support MUST be contingent upon improved and on-going conservation of ENNR, and delivered through the CAs.
2. Deliver through Conservation Agreements (NGO lead).
3. Agricultural improvements will be the main method for providing better livelihoods
4. Livelihoods may include health, sanitation, water, knowledge, skills etc, not just income generation.
5. FDA will facilitate and encourage improved livelihoods, but will leave the work to the specialist organizations.

Action Plan

1. CMC to support NGOs in the field
2. Support AML in its aims to reduce dependence on shifting agriculture.

3. Establish a steering committee with AML to coordinate the activities of all NGOs and partners in the Nimba area, exchange information, agree priorities etc.
4. Support and encourage the Ministry of Agriculture to work with NGOs and AML
5. Undertake studies/research into livelihood issues, and how these link to ENNR, with the aim decreasing risks to ENNR which stem from poverty, hunger, etc.

9.6 Community Forests

There are two community forests which are adjacent to ENNR. They are Zor Community Forest at the northeast tip of the reserve, and Blei CF at the southwest tip. They are managed with the support and advice of PROSPER.

Both of these forests have management plans. They are developing a Permit System and rules for the forests. Blei has 11 Guards and Zor has 10. The rules will need to be approved by FDA.

Policy

Liaise with the Community Forest managers for mutual benefit

Action plan

1. Find and read existing CF management plans
2. CMC to work with CF managers to find areas of cooperation, possibility of support (from ENNR) and harmonizing of management
3. Work with other communities, e.g. Zortapa, to explore options for establishing new CF(s)
4. Produce a joint Action Plan – NR (CMC) and CFs

9.7 Grievance procedures

The affected communities may at time feels as though the ENNR and/or the CAs are not supporting them as was agreed, or that new impacts, to local livelihoods, have emerged. There may also be isolated incidents where a community or individual are impacted by the ENNR, e.g. by human-wildlife conflict, like animals raiding a farm to eat crops.

A grievance mechanism is a process for project proponents or managers to receive, review and address affected communities' concerns and complaints. Any person or group who is affected by project activities has a right to raise a grievance and the project proponent has the responsibility to respond within a reasonable time period. The existence of a project-level grievance mechanism should not affect local peoples' rights to obtain external and/or legal advice or support.

A grievance mechanism is usually formalised through written procedures and will vary from case to case; any grievance mechanism should be specific to the context, addressing the requirements of both the project and affected local communities. However a number of common elements, including some basic principles, can be identified and should be adhered to. In practice, the processes and structures of any grievance mechanism should form part of an ongoing community engagement strategy, with regular communication and feedback between staff and community members.

Policy

ENNR will establish a grievance mechanism that provides a platform for community members to challenge other stakeholders over non-delivery of agreed activities or benefits and to address new or unforeseen impacts. ENNR cannot be held responsible or commit to addressing or solving all problems, but it will commit to ensuring the communities have a voice, in addition to the CMC, and that all efforts will be made, by all stakeholders, to address grievances.

Action Plan

1. CMC to worked with NGO partners and wider community to develop a grievance mechanism
2. The CMC should liaise in this regard with AML who already have a grievance mechanism in place for community grievances related to mining
3. Make explicit reference to Human-Wildlife Conflict (HWC; Section 7.4.1) here and how HWC issues will be reported / addressed in the grievance mechanism

10 LAW ENFORCEMENT

10.1 LAW ENFORCEMENT

10.1.1 *Poaching in ENNR – Current situation*

At present, the law is not being fully enforced. Researchers report that they frequently meet hunters and find many traps inside the reserve. In 2012 CI produced a detailed study of hunting and the bushmeat trade in Nimba County¹⁶, which stated: “*Almost all of the hunters have noticed a decline in wildlife in the forests; they attribute this to intensive hunting, an increase in the number of hunters, mining activities in the region and to some extent, bushfires, increasing population density and intensified agriculture.*” The survey found “*traps are set in Cold water at a rate of 3.31 traps/km,*”

Rangers in ENNR say they often meet poachers in the reserve, but all they can do is confiscate guns. When they seize meat, they auction it, and pay the money into the Revenue Office.

It is suggested that at present, patrolling does not happen often enough, and does not go far into the reserve. The staff has also observed that as they live among the community; the poachers often know if they are planning a patrol and stay out of the reserve until the FDA staff return.

The FDA staff report that if they do arrest people, an FDA lawyer is required to come from Monrovia. In practice the lawyer does not come, because of lack of transport and funds for fuel etc. This is discouraging for the ENNR FDA staff so they do not arrest hunters, but just confiscate their guns/meat, and concentrate on awareness.

Policy

There needs to be local capacity in Lofa to support FDA in processing cases of illegal activity in ENNR

Action Plan

1. Training needs assessment for Nimba Country Prosecutor(s)
2. Capacity building for Nimba County Prosecutor(s) to process cases, charge individuals and proceed through the justice system
3. Improve capacity of ENNR rangers and auxiliaries to identify key/threatened areas for focused patrolling & address all illegal hunting (see following sections)
4. CMC investigate allegations of illegal hunting inside ENNR by staff of the GSM towers (see section 7.3) and possibly contact the MDs of GSM companies

10.1.2 *Encroachment*

There are known to be some old farms inside the reserve, which already existed when the reserve was created about 10 years ago. The farmers are allowed to continue to harvest their tree crops (cocoa, oil palm etc) but not to brush or to plant new crops. Only a small amount of encroachment has been noticed over the boundary, but it is possible that some people might have established farms hidden in the interior of the reserve. The Camp 4 staff say they organize checks on the paths and roads leading into the reserve, to find out what people are doing.

¹⁶ CI 2012: “Bushmeat and Biomonitoring studies in the Northern Nimba Conservation Area”

No “chain-sawing” of trees, or logging, or charcoal making has been detected in ENNR. Remote sensing has shown that there has been some loss of forest inside the reserve in the last 10 years. This new information needs to be investigated on the ground.

<http://earthenginepartners.appspot.com/science-2013-global-forest>

Go to the above website, the search for Yekepa, Liberia, and you will see the ENNR area. Red areas show forest loss. Another option is the Global Forest Watch, which is maybe even easier to use:

<http://www.globalforestwatch.org/>

Policy

Encroachment of any sort cannot be tolerated

Action plan

1. Patrols should be instructed to go up every single path that leads into the reserve.
2. Most will be poachers' paths, but some may lead to hidden farms.

10.2 AUXILIARIES

Auxiliaries are volunteers from the local community who support rangers with information and by joining patrols. They are paid a stipend (to cover basic costs). There are currently 6 auxiliaries, but the target is 10-12 based on need and resources. The provision of auxiliary positions also serves to give the community an additional benefit, albeit small, from involved in ENNR's protection and way of building further links and trust with the community. As of January 2014 the auxiliaries have to travel to collect the stipend losing a reported two-thirds on transport costs; which means they are currently not benefiting from the role at all. FDA has stated that they aim to absorb long standing and hard-working auxiliaries into NR staff (i.e. on full-time, full-pay positions), but that is dependent on funding.

Policy

Auxiliaries are important to ENNR. Where possible, the auxiliary stipend should be increased and after 2-3 years of service, hard-working / effective auxiliaries should be given staff positions. Moreover, there is currently a need to recruit more FDA (CMC) rangers and the NR staff should first look to hiring people who are already volunteering (auxiliaries), or failing that, people from the most affected communities (primary communities).

Action Plan

1. Hire auxiliaries from the local, affected communities only
2. Provide training for them, both on law enforcement and on other 'life skills' (as a form of additional, in-kind payment/benefit – Section 15: Capacity Building)
3. Find a way to pay auxiliaries their stipend at the local bank (e.g. Yekepa) to avoid travel costs
4. Work with FDA and partners to raise the stipend of auxiliaries and/or, if possible, move them into paid staff positions after 2-3 years of good service

10.3 PATROLS

10.3.1 *Effective Patrolling*

It is not enough for patrols just to go for long walks to collect GPS waypoints to show that they have been deep into ENNR. The patrol teams must apply tactics and think about how they can be smarter than the poachers. Patrols must avoid using the same routes. Even if you are heading for the same destination, try to travel by a different route. CMC must plan their patrols carefully, use a combination of different routes, be unpredictable and base their planning on as much local knowledge as possible. There should also be a link made to conservation agreements, where local people are being offered financial incentive to join / support patrols as community auxiliary rangers.

Policy

Rangers should use all their experience and training to be more clever than poachers and undertake extensive, regular patrols.

Action Plan

1. Zone wardens to develop patrol plans that regularly change, and based on local/informant information, and the output from SMART (next section)
2. Training needs of rangers to be assessed and training provided
3. Monitoring (i.e. SMART) needs to be developed for patrol activity, impact assessment and to guide future patrols (iterative/adaptive management)
4. Lead by example: wardens should sometimes patrol with the staff and earn respect
5. Don't just walk down the easy roads to cover distance. It is more important to find and catch poachers or prevent them hunting than to walk a given distance.
6. If you find signs of poachers try work out what the poachers are doing.
7. At night, listen for gunshots and try to work out where the poachers are, and look for them the next day.
8. If you catch poachers don't talk in front of them. They might learn your tactics, strengths and weaknesses.
9. Maintain high, professional standards

CMC / rangers should also remember and use : The 4 "D's"

Detect	Use "intelligence" to find out or detect what the poachers are doing Use all your skills in the forest to detect or find the poachers
Detain	Track the poachers down and detain or arrest them
Deflect	The presence of patrols in ENNR will help to deflect the poachers from hunting in that area.
Deter	If everyone can see that you are applying the law in an effective, professional way, they will think that the risk of being caught is so high that they will stop poaching. They will be deterred from poaching.

10.3.2 *The 'Range System'*

Other countries in Africa have experimented with different systems of law enforcement. It has been found that the old system of having small groups of rangers living in "patrol camps" in communities (e.g. Camp 4) is not good. The men are too few to be useful, and they become too integrated into their communities so that arresting community members is difficult.

It has been found that the "Range System" is more effective. A Range Camp is built for the purpose, to provide housing for the staff that is separated from the community. In the case of ENNR there should be two ranges, the Gba Range in the West based at the new Headquarters at a site to be decided (see Chapter 15) and the Zor Range in the East. There should be two teams of 5 law enforcement staff in each range. (i.e. 10 per range, total 20 for ENNR.)

10.3.3 *Monthly Patrolling Routines*

Patrols have been infrequent. It is reported that this is because of lack of funds – when CI was providing patrol rations patrolling took place regularly. It is very important to establish a regular patrolling routine. Each range should have 2 teams of 5 men each. If one member is sick or on leave, then the patrol strength will be 4 but patrols should still go ahead. The minimum strength of a patrol is 3 Enforcement Rangers. Auxiliaries can make up the numbers.

Every month, each ranger should do 10 days of patrol (8 nights) away from his base on Extended Patrols. The rest of the month will be taken up with two periods of 6 days on standby or undertaking local daily patrols and investigations while working from the range post. The remainder is weekends/time off for 8 or 9 days.

It is important to follow the sequence so that there is **always** at least one group in the field on an extended patrol, there is **always** at least one group on stand-by/local patrols and investigations, and there is **never** more than one group on time off.

10.3.4 *Incentives*

It has been found in well-funded PAs that "incentives" can be highly effective for motivating staff to do their jobs well and to enforce the law. This depends on funding, and is included as a suggestion only for discussion/decision at FDA HQ. The suggestion is given in Appendix 7

Policy

Field staff should spend about 10 days per month on extended patrols in the field

Action Plan

1. Staff at the Range Camps are divided into 2 teams of 4.
2. Each team should do 2 extended patrols of at about 5 days each
3. Each team will do 12 days per month of local patrols from the Range Camp.
4. The remaining 8 or 9 days per month are rest time.
5. Range Wardens/Zone Warden will do 1 extended and 1 local patrol per month
6. Range Wardens must check that the LE Rangers are really working.
7. The Reserve Warden must regularly check on the Range Wardens and staff to ensure that patrol planning, patrols themselves and patrol data entry are all taking place and are to the required standard. The Warden must also check on the processing of cases (individual accused) of illegal activity and confiscations

10.3.5 **Routes for patrols**

It is important that patrols try to cover the whole reserve and should try to vary their routes. They should use a GPS to produce a map of all the existing trails in the reserve. When that has been done they can study the map and determine where new trails should be opened, so that they can cover the whole area. There may be some areas that are particularly swampy or steep or with thick vegetation but remember, if poachers are going into those areas, the law enforcement staff should do so too.

Policy

The whole reserve needs to be covered by patrols, but particular focus should be made on biodiversity or law enforcement (infringement) hotspots

Action plan

1. Use GPS to record all existing trails
2. Produce map of all existing trails
3. Study map together to decide where new trails ought to go
4. Cut new trails
5. Vary the routes of patrols – try to get into all areas where there could be poachers

10.3.6 **Patrol rations**

Patrols have been rare in 2013. One problem is the lack of rations. When CI provided rations patrols were much more frequent. It is very important that plans for patrols are kept secret from all local people. A problem arises when the staff go out to buy food to prepare for a patrol. It is then obvious to local people that the guards are going on patrol. It is much better to buy the food needed for patrols centrally. The cost of food is small compared with the other running costs of the park. This has three advantages:

1. Staff will always be ready for patrols (and will not have excuses for delays).
2. Local people will not be alerted by rangers buying food before a patrol.
3. The staff should be properly fed while on patrol.

Policy

Food will be bought in bulk for patrols, to improve secrecy and readiness.

Action plan.

1. Reserve Warden to fix the rate and procedures for the rations
2. Range wardens to organize purchases and controls.
3. Wardens to emphasize the importance of secrecy.

10.3.7 **Records, monitoring, written reports and analysis.**

The following recording systems are used:

SMART - Spatial Monitoring And Reporting Tool

Vision: Effective management of conservation areas delivered through implementation of tools and standards

Advantages

- Designed by conservation practitioners
- Motivate rangers
- Empower conservation managers
- Guide conservation strategy
- Ensures accountability and good governance
- Peer learning and support network
- Free

SMART is a computer program which has been designed for wildlife patrols and is easy to use. It is available free of charge from this website:

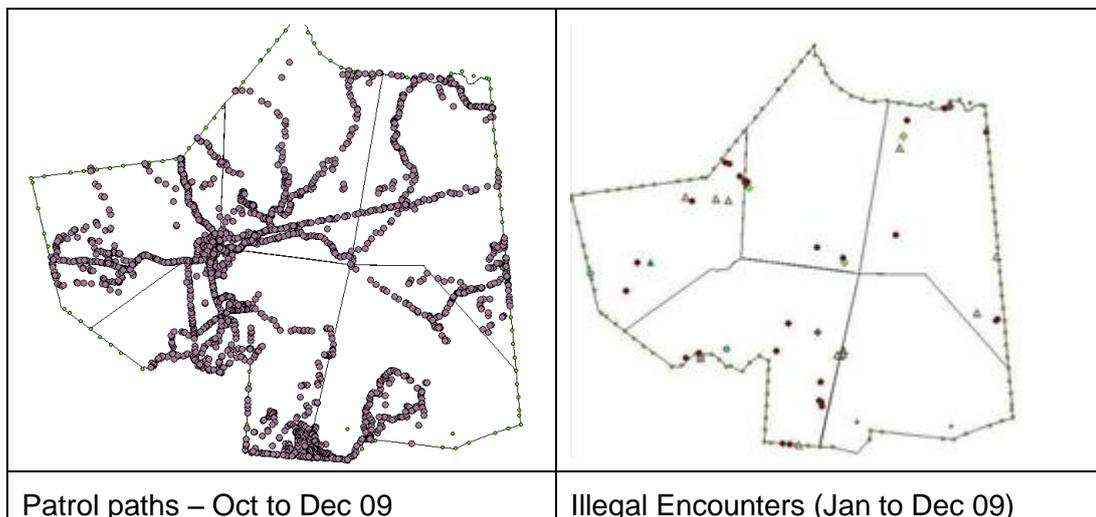
<http://smartconservationtools.org/>

The SMART system dramatically improves the Law Enforcement. All patrols have GPS units to record where they have been and what they have seen. The SMART system plots and shows:

- Patrol paths and areas
- Illegal activity
- Wildlife observations¹⁷

The maps below give an example of from Ghana. They were produced by Law Enforcement Rangers and Wardens, after training.

It is possible to use a basic GPS to record waypoints on a form¹⁸, (stating the nature of the observation at each position) and then type out the coordinates of each point into a spreadsheet, and display the points on a mapping system such as ArcInfo or QGIS. This is technically more difficult as it requires more knowledge of mapping software, and it is easy to make mistakes in typing the coordinates. With a good GPS one can simply attach it to a computer through a USB connection, and download the points into a SMART map. This is much quicker, easier, and not open to error.



The Garmin GPSmap 62s is an ideal GPS for this purpose.

¹⁷ It can also provide distances covered and calculates index information for illegal activity and wildlife. Index information is simply numbers of observations (animals or illegal activity) divided by time or distance.

¹⁸ It is understood that such a form has been developed, and should added as an Appendix

Policy

The SMART system should be adopted to monitor patrols, wildlife and illegal activities

Action Plan

1. GPS positions are recorded every 30 minutes during patrols and/or at the location of any illegal activity or important wildlife observations
2. The standard report sheet will be used for all patrols.
3. Biologist should visit ranges to download the waypoints into his laptop regularly
4. The SMART print-outs (tables and maps) must be provided to the Range Warden
5. Biologist will help Range Wardens to compile monthly reports.
6. CMC should liaise with AML and the CFMBs on SMART data collection as AML already has (supported) a system for biodiversity and law enforcement data collection in the CFs

10.4 PERSONNEL**10.4.1 Officer Participation**

Warden participation, management and oversight are regarded as the most important element of successful law enforcement. In 90% of cases where rangers have poached, the lack of supervision and senior staff participation was a major factor.

Regular patrolling and participation in other activities with rangers by officers will establish good morale and respect. The temptation for guards to poach should then reduce as the chance of an officer detecting it will be greater.

Good leadership is much more effecting than sitting in an office writing emails. Wardens who go on patrol with their guards are respected and trusted.

A system of unannounced checks should make sure that staff are operating correctly. If the system is formalized any feelings of resentment will be avoided.

Policy

The ENNR Manager/Warden and Zone Wardens should go on patrols regularly. Training needs must also be identified and addressed (see section 10.2.1)

10.4.2 Personnel – Current and Planned

The Law Enforcement staff are currently as follows:

Zone Wardens	2
Enforcement rangers	9
Auxiliaries	10

There ought to be 2 Zone wardens plus 20 Enforcement Rangers (See 10.2.3). Staff issues will be discussed in detail in Chapter 12. There is also a NR biologist who has a supporting role relating to data collection, data entry and analysis

10.5 LOGISTICS

10.5.1 *Communications*

ENNR is fortunate that it has good mobile phone coverage. It might therefore not be necessary to spend money on a radio communications system, although FDA have highlighted radios as a critical tool for management and protection.

Policy

Mobile phones will be used for communications until radios are provided, if these are deemed necessary

Action plan

1. Staff will use their own mobile phones to communicate (at least in the interim)
2. Scratch cards (phone credit) should be provided by key staff and all rangers to enable them to work effectively
3. ENNR should also undertake an assessment of the need and viability of radios for ranger stations and individuals to improve communications

10.5.2 *Firearms*

It is normal for Rangers to be armed in other countries – including the Tri-National partners, Guinea and Côte d'Ivoire. However, in Liberia it is illegal to have firearms and so the Rangers are not armed. While it might be desirable for the Rangers to be armed, the situation is unlikely to change during the lifetime of this plan, although this may change in the future (and with forthcoming plans). The Rangers report that sometimes they have had to run away when threatened by armed poachers.

Policy

Rangers and protection staff cannot be armed. Instead they must have uniforms, good communications, good training, good intelligence and patrol in large groups, minimum of 4 rangers, as ways to mitigate the lack of firearms.

10.5.3 *Other Equipment*

Patrol equipment should include 10 lightweight 2-man tents, 20 backpacks, 20 sleeping mats, 20 sets of cooking equipment, 6 GPS units, 20 torches. Rangers also need uniforms, boots, rainboots and raincoats, and if possible, digital cameras. (See also Chapter 15 for further details)

Policy

It is essential that staff on patrol are properly equipped.

Action plan

1. Procure equipment
2. Divide equally between the two ranges
3. Set up and apply strict storekeeping regulations, so that items do not get "lost".
4. Equipment should be signed out of the store before each patrol,
5. It must be cleaned, checked and signed back in after each patrol
6. Replace as necessary

10.6 “INTELLIGENCE”

Law Enforcement is unlikely to succeed without intelligence. Patrolling is much more effective if you have some information about where poachers might be operating.

Establishing an informer network is a very good idea. It is not a system that can be written down as it is an informal relationship that may happen after someone has been arrested. They become informants and change sides to avoid punishment. Informants can be compensated through goodwill, and by the possibility of employment. But be careful, some may just be boasting or may be trying to mislead you.

Policy

The informal use of informants should be encouraged.

Action Plan

1. Try to find out as much as possible, following a logical sequence of questions.
2. Reward informants after checking the information, if the info is useful. (Buy scratch cards, pay for transport).

10.7 PROSECUTIONS

10.7.1 ***FDA Lawyer***

Although it is a problem that affects all the protected areas in Liberia, the need to have an FDA lawyer to come and prosecute every case in every PA is clearly impractical, given the distances involved. Even if funds and transport were available the lawyer could be travelling all the time.

Policy

The system by which an FDA lawyer is required to prosecute all cases in court does not work and must be reviewed and a more practical solution found. As suggested in Section 101.1.1 the County Prosecutor should be trained and facilitated to take on this role (from the FDA lawyer), with the FDA lawyer providing training and remote oversight.

10.7.2 ***Judiciary***

The FDA staff report that even if a prosecution is carried out, the judge may not be aware of the wildlife and forestry laws, and may not care to impose any punishment. In other countries which have faced this situation, an effective solution is to organize a training course for the judges. This not only increases their knowledge of the wildlife laws, but it also makes them more supportive of conservation issues.

Policy

Judges need to be informed about the wildlife and forestry laws.

Action plan

1. Ensure that one judge is fully briefed on the current wildlife and forestry laws.
2. Engage the FDA lawyers to train the best local judge.
3. Organize a training session for the other judges in the county.
4. Provide bound copies of the current laws, accommodation and DSA

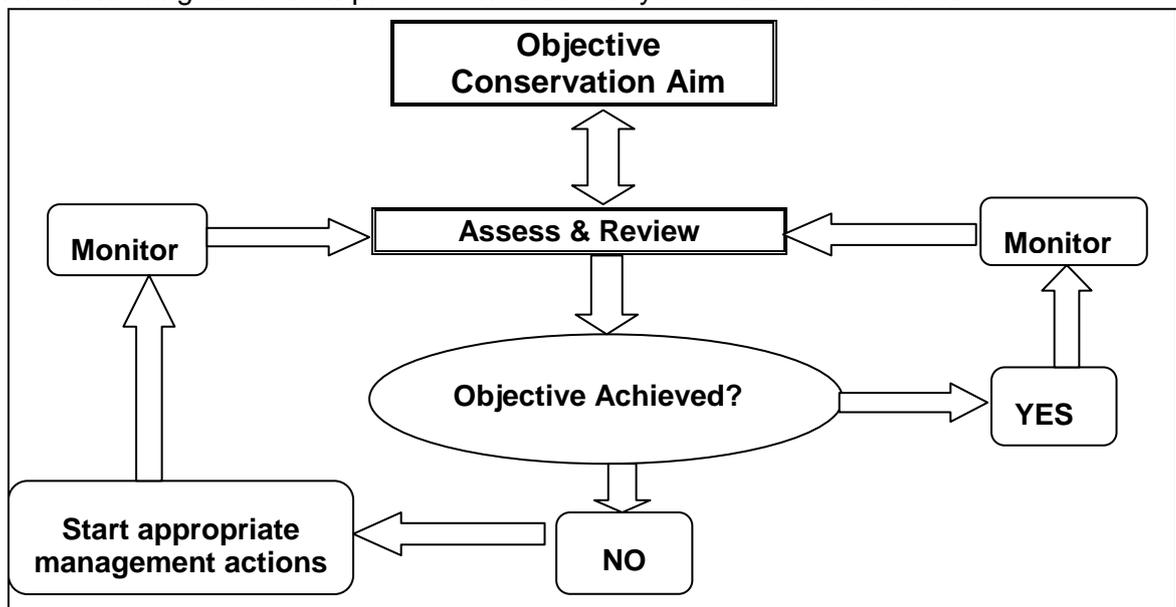
11 MONITORING AND RESEARCH

11.1.1 Adaptive management

Managing a Protected Area is not straightforward and the relationships between different environmental factors are often poorly understood. Thus management decisions may have to be made without adequate information. The term “**Adaptive Management**” accepts that as circumstances change and more knowledge is gained from research, and with feedback from management itself, it may be necessary to adapt the management plan.

A primary objective of PA management is to maintain ecosystems with as little human intervention as possible. Ecological processes should be usually allowed to proceed, even if they involve fluctuations in ecosystem structure. In any case, there is not sufficient capacity to monitor resource status closely - only major changes can be detected.

The monitoring and review process should be a cycle as illustrated below.



The Adaptive Management Approach

11.1.2 SMART

SMART is a new and improved tool for measuring, evaluating and improving the effectiveness of wildlife law enforcement patrols and site-based conservation activities. SMART was started by a diverse group of conservation practitioners who understood the needs of front-line enforcement and who recognized the day-to-day difficulties faced by many conservation managers across the world: operating on thinly stretched resources in the face of escalating threats to biodiversity. SMART recognizes the power of information and importance of accountability in directing resources to where they are most needed. SMART is not owned by any one individual or organization: it is free and available to the whole conservation community. It is a relatively simple GIS system for displaying and analysing data that has been gathered by Rangers on patrol. It can be used to direct and monitor patrols, so that, for example, they go to areas where there has been insufficient ground coverage. SMART provides a lot of data about the

distribution of wildlife and the incidence of poaching. Examples of maps produced with SMART are given in Section 10.2.6 and more details are to be found here:

http://smartconservationtools.org/brochures/user_english.pdf

SMART can also be used to monitor the distribution and relative abundance and population trends of mammals from observation of tracks (footprints) and dung (droppings). It has the advantage of being easy to use, and easy to analyse. Inaccuracies in data collection are likely to be reduced because many different staff are gathering the data. Population trends can be determined from changes in encounter rates over time.

Policy

SMART should be adopted.

Action plan

1. When funding available with new project, procure GPS units, laptop for biologist
2. Arrange with NGO partners for essential skilled training
3. Require that the biologist produces monthly reports
4. Ensure that the reports are widely circulated, and are well archived.
5. Use the data to monitor trends and advise adaptive management
6. Training and long term capacity building for biodiversity (bio-)monitoring

11.1.3 Indicators and Milestones

The main purpose of monitoring is to find out whether the reserve is being managed effectively. We need to establish **indicators** to that will show whether ENNR is being well managed or not. This can be done by establishing “indicators”. They should be SMART (**S**pecific, **M**easurable, **A**chievable, **R**elevant, **T**ime-bound) – note that this is not the same as the “SMART” patrol monitoring in the earlier sections.

Policy

Monitoring should show whether the reserve is being managed effectively

Action plan

1. Decide on Indicators & Milestones through consultation with FDA headquarters and NGO partners

11.2 CURRENT RESEARCH

1. Currently (as of December 2013) a scientist is stationed at Coldwater at the southern tip of ENNR, who is doing research on chimps and their cultural variation (coordinated by the Max Planck Institute).
2. AML has some trial plots near Blue Lake to try to find suitable tree species for site restoration after mining. They are planning ahead for the replanting of their new mines at Mt Tokadeh etc. However, the results of their work will be very useful for ENNR and could be adopted for the ecological restoration of the former LAMCO mine sites.
3. AML has recently hired specialists to produce a very wide range of high quality distribution maps of dragonflies, butterflies, amphibians, snakes, birds, small

mammals, large mammals and trees and plants. ENNR is thus exceptionally well documented and studied, which provides some excellent baseline data for future monitoring comparisons. As stated above, bio-monitoring capacity and protocol need to be developed for ENNR

11.3 FUTURE RESEARCH

The distribution maps that have been produced are not systematic. The researchers have not looked at the whole reserve, but have sample places with better access. These include the roads up to Blue Lake and Cellcom Towers, Grassfield, Coldwater, and Geipa. It would be very good if an energetic team could carry out a survey of relatively common species throughout the reserve.

Thus, if a university is looking for a research project and asks ENNR if it has any suggestions we could say that the following would be useful:

- Carry out a systematic large land mammal survey over the whole reserve, as a baseline for monitor trends in future.
- The causes and impact of fire on the mountain tops.

Policy

Future reach should be encouraged in ENNR and coordinated to ensure that it does not negatively impact the NR and, where possible, it supports its future protection and management

Action Plan

1. Communicate/coordinate with the Nimba Community College, other academic institutions and NGO partners on research opportunities
2. Develop own (ENNR) research goals and objectives, and decide which should be handled internally and which require support
3. Ensure that all proposed research is approved by FDA and the NR biologist and discuss with NGO partners for feedback on risks, approach, methods and priorities

11.3.1 **RESEARCH REGULATIONS**

ENNR should try to ensure that researchers deliver their reports to the reserve HQ and to the FDA library. There should also be efforts to ensure that the researchers work with counterparts from among the park staff, where possible. Many of the auxiliaries have worked with researchers in the past and rightly gain some income and useful experience from doing so. This situation should continue to be encouraged

Policy

Independent research carried out by non-NR staff should be encouraged if it does not harm the environment and benefits Liberia and its people

Action plan

1. Assist researchers to work with auxiliaries.
2. Request that FDA HQ should copy research permits to ENNR HQ
3. Request FDA HQ to give ENNR details of what researchers are authorized to do
4. Turn results into management and monitoring tool

12 PUBLIC RELATIONS & EDUCATION

12.1 SCHOOL GROUPS AND WILDLIFE CLUBS

Thanks to the AML and NGO partners, School Environment Clubs have already been set up in 10 schools around ENNR.



Zortapa School Environment Club

The Environmental Clubs run as an extra-curricular activity, so are voluntary, outside of normal lessons and the school time-table. So far 30 lesson plans have been developed; with 10 already operational and a further 20 being piloted in 2014.

The clubs are for mixed ages (all grades) as none of the children have received environmental education before, meaning they are of a similar academic level. The clubs and lesson plans focus on ENNR, its wildlife, and why that is important, and the wider environmental services and values the NR (and all forests) provide to humans.

The schools programme is funded by AML and implemented by CI and partners and it will be important to ensure the is on-going funding to keep the programme going.

12.2 LOCAL COMMUNITIES

In January 2013 the CMC carried out awareness about the reserve at all the primary stakeholder communities. They accepted the principle, but do want to see benefits coming to them. In January 2014 there will be a consultation process at the primary stakeholders, to get their views on the management plan.

It is very important to maintain awareness, especially as people will be moving from the site of the new mine at Mount Tokadeh, which could cause more pressure on ENNR.

Policy

ENNR will work with partners to provide support to the schools programme and maintain ongoing awareness raising and engagement regarding ENNR's management

Action Plan

1. CMC, in consultation with all partners, will develop a community out-reach plan for on-going engagement, education and awareness raising regarding ENNR, its values, regulations/laws and involvement in the community
2. Explore options for 'field trips' for the community to visit ENNR regularly
3. Explore options for building an educational visitor centre at ENNR

13 TOURISM DEVELOPMENT

It is a part of the Vision for ENNR that it “will be the best protected area in Liberia and will be famous internally for ... eco-tourism ...”. However, there are many challenges and constraints on tourism development and any tourism development that could be achieved will be, for short to medium-term, very small in scale and thus unable to bring significant benefits to the NR or local communities in terms of revenue and/or employment.

13.1 Tourism costs and benefits

Small-scale nature tourism, based around rare species, namely butterflies and birds, could bring a small number of visitors to ENNR. However, if the number of visitors is very low, it would not be cost-effective to build/develop tourism infrastructure, develop ‘home-stays’ (where tourists stay with the community in their own homes) or train local guides. As such, tourists will probably come as part of organized tours, with most of the benefit going to ‘outsiders’ (agents and tour companies). One way to capture some benefit would be develop a fee system for the park, with visitors depositing money into a strong box at FDA/CMC headquarters in the NR. This could be done using an ‘honour system’ with no NR staff involved in taking money or providing tickets, and instead with visitors being prompted to deposit the fee via large signs and under guidance of the tour operators (who need to be informed)

However, it is important to have realistic expectations; fees are *not* typically a significant source of funding for managing and operating protected areas.

Moreover, the country currently receives very small numbers of international visitors, with many fewer reaching its PAs, and faces a severe shortage of facilities, basic infrastructure and capacity to build and service a tourism industry. These are critical factors. There is no potential for entry fees to generate significant income for PA management in this context.

Both the 2010 Ecotourism Action Plan (FFI, 2010), and an analysis by CI of ecotourism as a potential revenue stream for East Nimba Nature Reserve (Gale, 2012), provide a clear analysis of the current constraints and conclude that:

- The potential for ecotourism in Liberia is currently limited; the principal barriers to international tourism development in particular are:-
 - High air fares from Europe (~ 3 x cost to South Africa)
 - Expensive hotels (\$100-150 per night average in Monrovia)
 - Little accommodation of acceptable standard outside Monrovia
 - Expensive visas and lengthy application procedure
 - Single entry tourism visas make trans-national trips problematic
- There is a significant lack of data, including the number of potential visitors and their willingness-to-pay for ecotourism opportunities at different sites; and
- Any effort to support ecotourism development should focus on small-scale projects, targeting the domestic expatriate market.

The 2013 review concludes that “While Liberia possesses considerable assets of ecotourism potential, there is a severe dearth of facilities and basic infrastructure and a lack of capacity at national and local level. This means that there are few activities that can be packaged as attractive products. Limited access to major markets in at least the short to medium term is a serious constraint on revenue generation potential and,

hence, on the viability of new activities even if funding became available for them” (Pg. 31, FFI 2010)

This is not to say that small scale ecotourism development would not be a worthwhile exercise. Even relatively modest enterprise development, such as the community-led initiatives proposed in the FFI report, have the potential to improve community attitudes towards PAs by demonstrating that these sites can make a contribution to the local economy – although that would require that a reasonable number of visitors actually came. This could be non-financial, but still significant benefit for the PA itself. Also, a ‘slow growth’ model lays foundations that can be built on further over time.

Expectations of what any investment in ecotourism would aim to achieve must be very clear. Not all sites are equal, and those more accessible to Monrovia, such as Lake Piso, are likely to offer greater potential in the near term. Small-scale, community oriented ecotourism initiatives represent an additional, albeit worthwhile, cost, and will take time to break even and turn a profit. Their primary objective should be to enhance the well-being of communities living within and around Liberian PAs, rather than generate income for management of the PA itself.

For the purposes of this plan, ***it is strongly advised that ecotourism development is not considered to be a strong candidate for generating revenue to support PA management or provide sustainable livelihoods, compensation or incentives to local people.***

If the FDA does wish to pursue the issue of setting park entry fees, it is strongly advised that the services of a specialist in ecotourism should be sought, and that assessment be conducted using the UNDP’s PA Fee Criteria Checklist (UNDP, 2012).

A separate document contains information for ENNR managers, if in the future they want to explore the opportunities associated with tourism / ecotourism.

Policy

Tourism is a low priority, but the potential risks, costs and benefits must be considered

Action Plan:

1. Managers should regard tourism as a low priority, but be aware of possible potential for a small number of tourists and decide whether or not there needs to be provisions made for such visits and whether or not a fee system is required or beneficial

14 PERSONNEL MANAGEMENT

14.1 FDA STAFF

14.1.1 *Current FDA Staff Numbers*

	Zortapa	Geipa	Camp 4	Total
Chief Park Warden	1	0	0	1
Biologist	1	0	0	1
Zone Wardens	1	1 (Ag)	1	2
Enforcement Rangers	2	2 (+1 Ag ZW)	1 (+1 rtd)	7
Community Engagement Rangers	1	0	1	2
Auxiliaries	4	3	3	10
Driver	1	0	0	1
Secretary	(Vacant)	0	0	0
Security	1			

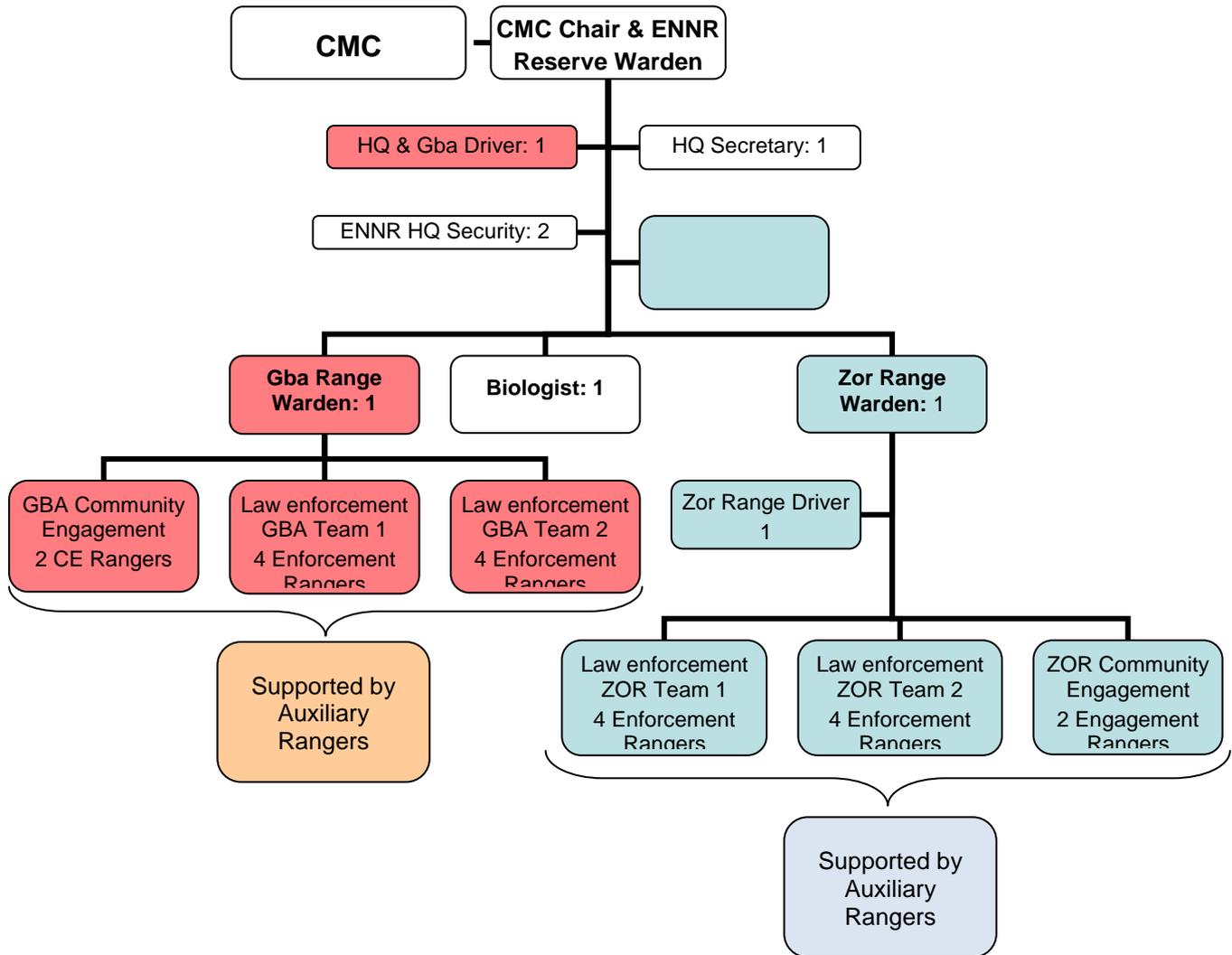
One ranger is retired, but is still being paid normally and therefore occupying a post that could be filled by an effective worker. One ranger is the Acting Zone Warden at Geipa

14.1.2 *Proposed CMC Staff Numbers*

Staff numbers should only be increased if:

- Monitoring shows that the current staff are working effectively;
- There is a need;
- There is available budget

The organogram below represents an ideal situation. It assumes that a new HQ has been built on the western side of the reserve and the Range System has been adopted. Even without the range system, these numbers should be considered as a useful guide for NR staffing:



The numbers of staff required have been determined by thinking about functions, and the adequate performance of duties. In the case of the Enforcement Rangers, the numbers provide for the fact that at any one time, some may be on leave, or off sick or have other reasons for absence.

Proposed future CMC staff numbers

	Gba HQ Range	Sehyi	Zor Range	Total
Chief Park Warden/ CMC co-chair	1	0	0	1
CMC Chair (from Gba)	1	0	0	1
CMC Co-chair	0	0	1	1
CMC (community)	1	2	1	4
Biologist (FDA)	1	0	0	1
Range/Zone Warden (FDA)	1	0	1	2
Senior ranger (FDA)	1	0	1	2
Total CMC				12

Support staff				
Enforcement Ranger	7	0	7	14
Community Engagement Rangers	2		2	4
Drivers	1		1	2
Secretary	1		0	1
Security	1		1	2
Auxiliaries*	5		5	10
Total support staff				33
TOTAL				55

* Auxiliaries include the 2 security (so 12 in total). It is hoped that auxiliaries will be absorbed into permanent posts, but they will need training and available budget to facilitate this

CMC Community Members

At present the CMC are paid for work done, on a daily-rated basis. However, the ENNR should work with partners to bring CMC members into the pay structure of the NR. Equal management responsibility (co-management) should equate to equal man-hours and equal-pay.

14.2 PERSONNEL MANAGEMENT ISSUES

14.2.1 Code of Conduct and Discipline

It is essential that good discipline is applied to all staff.

Policy

Develop a code of conduct based on the one developed by FDA for Sapo NP, but also develop specific code for the CMC

Action Plan

1. Use the FDA (Sapo) code of conduct; develop additional code specific to ENNR
2. Inform all staff about the code(s) of conduct
2. Give all staff a copy of the code(s)
3. Enforce the code(s)
4. Take disciplinary action against staff who break the code(s)

14.2.2 Terms of Reference / Job Descriptions

All staff should have copies of their Terms of Reference which defines each job and its responsibilities. They should have been issued with ToR at the time of recruitment. Staff should understand the contents of their ToR.

Policy

Staff will work more effectively if they understand what they should be doing.

Action Plan

- | |
|--|
| <ol style="list-style-type: none">1. Ensure that all staff have "Terms of Reference".2. Ensure that everyone understands the contents of their ToR.3. Assess each person's ToR annually and correct where necessary. |
|--|

14.2.3 Staff Performance Evaluations

The NR will need to established system for annual appraisals of staff performance, based on FDA rules

14.2.4 Staff Selection

Staff selection will follow FDA rules and procedures

14.2.5 Transfers

Transfers between other PAs and ENNR and within ENNR should be encouraged and undertaken following FDA rules and procedures

15 CAPACITY BUILDING

Some of the CMC staff are well trained (mostly those coming from FDA) - but some of them, and all of the auxiliaries and community members of the CMC have received no training to date (January 2014). The auxiliaries are largely untrained¹⁹.

At the workshop in Sanniquellie the following training requirements were identified by the different groups. They are listed in an approximate order of priority. The prioritization of these courses should be based on the particular needs of the person's job. For example, training in computer skills or GPS use should only be provided if the person to be trained has access to a computer or a GPS respectively. Training should be undertaken in two phases, with phase one for urgent training needs.

Subject	CMC	FDA	Auxiliaries
Training in law enforcement techniques		X	X
Setting up patrol and monitoring systems		X	X
Community engagement training at ENNR HQ		X	X
Awareness and Mobilization	X	X	X
Conflict Management	X	X	
Conservation and Forest Resource Management	X		
Computer training: Word and Excel	X	X	X
Use of GPS and compass	X	X	X
Setting up of bio-monitoring systems		X	
Bio-Monitoring, survey and inventory	X	X	X
Use of basic map software (QGIS)		X	
Organizing meetings and workshop facilitation	X	X	
Finance and Administration	X	X	
Study tours	X	X	X
Training in driving at Sanniquellie		X	X
Project Planning	X	X	
Data collection, analysis and reporting systems	X	X	X
Tourist guide: how to handle visitors' expectations, and visitor management		X	X
Report Writing		X	X
Training in camera trapping		X	

¹⁹ This section is based on outcomes of the Gap Analysis Workshop, Sanniquellie, April 2013

In addition, there is a long term need for external support in capacity building for CMC, and for rangers and auxiliaries, on a range of PA management skills from project management and administration, though law enforcement, SMART, research and bio-monitoring; and this should be built into future planning and budgeting. ENNR is to be a role model for conservation and co-management both in Liberia and the wider region, and for at least the life of this plan, that will require outside support, to some degree. Moreover, there is always the opportunity to improve capacity, especially in regard to scientific knowledge and research, and that should be seen as an on-going need and opportunity.

More specifically, ENNR will need to develop capacity to turn research (data) into management tools, and to create or adapt these management tools. This will require that there is not only high quality and appropriate research undertaken in ENNR, but also that there is capacity to guide, analyze and use this data.

Policy

Training should be provided to all CMC staff, rangers and auxiliaries, to enable them to function more effectively, and to reduce the risk of conflict or exploitation from disgruntled people in the future

Action plan

1. Prioritize capacity building and training needs for teams and individuals (training needs assessment)
2. Explore a range of capacity building tools (beyond training) like field trips, study tours, exchanges, on-line courses, and so on
3. Seek agreement on a capacity/training priority(s) for each group
4. Seek source of training (NGO partners, other FDA staff, scientists/academics); make arrangements – bookings, accommodation, transport etc as necessary.
5. Use in-service training wherever possible
6. Developed phased approach to funding based on need, with phase one being for urgent training needs and phase two for important but not urgent needs
7. Follow up to ensure that the training is used and was effective
8. Learn lessons and revise arrangements for subsequent training
9. Training from CMC and partners to improve capacity and life skills of auxiliaries as an 'in-kind' benefit for volunteering at ENNR (e.g. driving, IT, farming, car mechanic, etc.), which will also give them greater opportunities in life

16 INFRASTRUCTURE & EQUIPMENT

16.1 BUILDINGS

There are three main buildings for CMC at ENNR. These are the Zortapa HQ office building, the Geipa Zone Office and the Camp 4 Zone Office.



Geipa Zonal Office and staff



Zortapa ENNR HQ Office



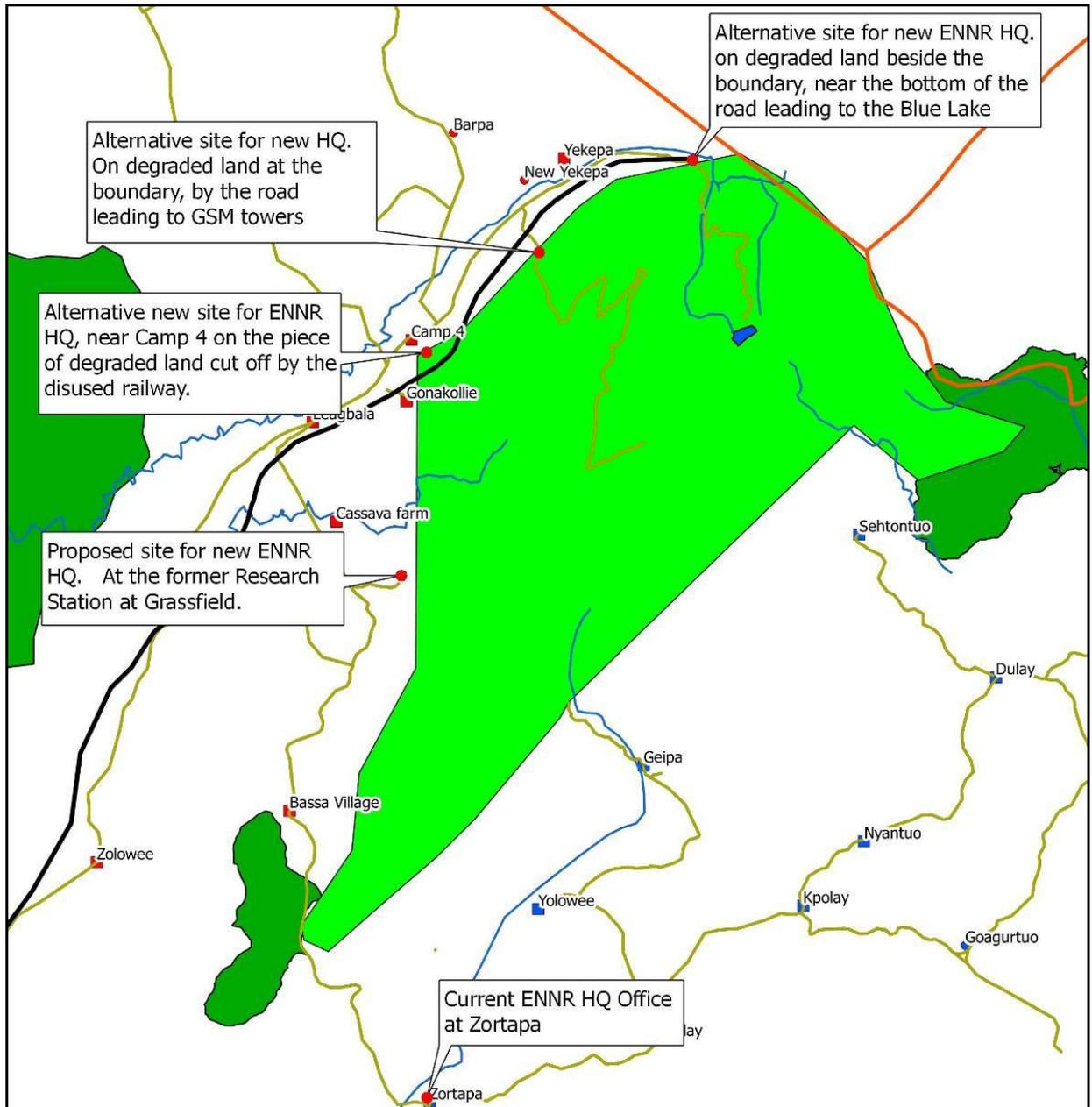
Camp 4 Office

Although the Zortapa HQ is in reasonable condition, it is not a good strategic location, and is not close to the reserve. Some options for building a new HQ in a better location are given in the next section. Geipa Zone Office is in good condition, and should continue to be used. The Camp 4 office is in poor condition.

16.2 ENNR HEADQUARTERS

The Reserve Warden has observed that HQ is not in a good place. Zortapa is more than 4km from the reserve, and the road to the reserve is poor and will not be upgraded. Also the staff live in the village, among the community and so the local people know what they are doing and when they are planning to go for a patrol.

So it makes sense to build a new HQ, with housing for the staff. Whichever site is chosen it will be the new Gba Range Camp and Camp 4 will have no further purpose and will be closed (it is already in poor condition). As an interim measure, the first new ENNR HQ could be housed in one or two modified shipping contains. Note that AML uses such shipping contains for offices (e.g. with doors, windows, electricity and air-conditioning added) and could provide the CMC with guidance on how to proceed.



Options for a new ENNR HQ

HQ Office requirements

The **new HQ** should have the following (approximate) specifications

- An office each for the Park Warden, the Zone or Range Warden, the Biologist and the Secretary. Two offices should also be available for the community members of the CMC to use. Total 6 office rooms.
- A large meeting room, big enough for meetings of about 25 people.
- Restroom/ toilets
- Storeroom for equipment, with shelves all around the walls
- A room for auxiliaries, to work from and for their storage

If a new HQ is going to be built in a new location, it is wise to consider all the options and pick the best one. The following table proposes the advantages and disadvantages of the different sites.

Site	Advantages	Disadvantages
Grassfield	Famous site where Nimba Flycatcher was discovered. Close to partners at AML	Isolated location. There could be access problems in the rains. No possibility of getting electricity from Yekepa. Additional journey back to the main road at the start of journeys to other sites.
Camp 4	This site could stop access to this part of the reserve by farmers/ hunters. Close to partners at AML	Probably no chance of getting electricity from Yekepa?
Cellcom road	It is thought that there are many illegal activities happening up this road – beside the road, and at the Cellcom and other towers. This site would provide some better control of access to GSM towers and to the new Palaver Hut. Close to partners at AML	Best situation to get electricity from Yekepa?
Blue Lake road	This site could help to control and record tourist and other access to the Blue Lake area. Close to Guinea border for the “Tri-national” future. Close to partners at AML	Probably no chance of getting electricity from Yekepa?

Other people may be able to think of addition advantages and disadvantages of the above sites, or a site that is even better than any of these.

Policy

The new ENNR HQ should be located in the most advantageous location.

Action plan

1. FDA, CMC and stakeholders should discuss and consider the above options.
2. Think of more advantages and disadvantages.
3. Visit sites and review options. Check for access to clean water
4. Seek advice on the possibility of getting electricity from Yekepa.
5. Visit Grassfield during heavy rain and check road condition.
6. Make decision with wide stakeholder consultation and advice.
7. Carry out “due diligence” of all aspects of the site.
8. Consider shipping contains and explore options / costs, with input from AML
9. Begin design and construction when the new project starts.

16.3 STAFF HOUSES

Houses will be provided for the staff (this is normal in most Protected Areas in Africa).

There will be 16 housing units at the new Gba HQ site

The houses' sizes / specifications will reflect the positions of the intended occupants.

House type	Gba	Zor
House for Warden	1	-
Senior staff houses	2	1
Junior housing units for other staff	13	11
TOTAL	16	12

The detailed specification and budgets can be established when the new project begins.

16.4 ROADS AND TRAILS

The old road from Zortapa, through Coldwater, to Gbapa is not in good condition. It is overgrown, and blocked by a few fallen trees. It would not be difficult to re-open it for vehicle use, but it is widely agreed that it would be unwise to do so, because a better road would encourage more farming in the area, and improve access for poaching.

However if there is to be an FDA camp at Coldwater it would be possible to monitor/control use of the road, and would be required for the Camp – although a narrow trail, accessible by motorbike but not by car, might be the most appropriate

No new roads need to be created for ENNR management but additional patrol trails might be required in the future. It should be stressed that new trails, while design to increase the ease and rate of patrols (and finding/stopping illegal activity) they can also increase or facilitate more illegal activity by easing access. As a general rule, cutting new trails is to be avoided and where possible, rangers should patrol using existing trails, streams and animal pathways. If a new trail is required then the CMC must undertake an EIA to assess and mitigate possible negative impacts, and ensure that the new trail is regularly and thoroughly checked and patrols, to make sure it is not supporting illegal activity,

16.5 VEHICLES

Currently, Geipa camp and Camp 4 have one motorbike each that is said to be 6 years old. There is also one based at Zortapa.

All rangers stations need to have a least one motorbike, although ideally two or three bikes, depending on the number rangers For patrol purposes and general transport, six rangers would require 3 motorbikes.

The NR (CMC) will required at least one car (4x4) but preferably more. The NR Warden currently has a vehicle and that should be sufficient for the life of this plan. Provision should be made for both vehicle maintain (in budgets) and for the replacing of both motorbikes and cars.

16.6 EQUIPMENT

16.6.1 *Patrol equipment*

All rangers must have the clothing, communication and data recording equipment to perform their roles properly. They also need to be armed but without carry firearms, in line with FDA policy and national law.

Patrol equipment is covered in section 10

16.6.2 *Uniforms*

The FDA staff at ENNR have not received uniforms since 2006. It is essential that they should have uniforms as it would give them greater respect and the authority, with which to perform their roles, by the communities (and the poachers). Uniforms will also help giving rangers confidence and sense of pride and professionalism.

The normal FDA ranger uniform is required, with the addition of the ENNR logo. Details on footwear is provided in Section 10.

16.6.3 *Office equipment*

There are two desktop computers at Zortapa HQ. One is used by the biologist, and the other for administration. As of early 2014 the offices have no stationery.

The Office requires:

- Checking the working order of the computers and ensuring they have updated anti-virus software;
- A Printer and ink cartridges
- Stationary (printer paper, notebooks and pens – various)
- Desks and chairs for all office staff
- Air-conditioning or fans
- Mobile phones and phone credit (scratch card)

16.7 MAINTENANCE

The ENNR will need to devise a system for the safekeeping and maintenance of all equipment and property. It is advisable that individuals be given the responsibility to keep certain items or areas clean, safe and accounted for. Equipment held in 'common' ownership is likely to get spoiled or be lost.

Policy

ENNR will be a fully equipped NR with all necessary equipment, vehicles/transport and infrastructure provided in accordance with FDA norms, this line with this plan and the evolving needs of the CMC and NR staff

Action Plan

1. Develop a full list of required equipment and procurement plan
2. Develop systems and policy for procurement, invoicing, cleaning, safekeeping and maintenance
3. Train staff of, and print and make public, the rules and policy(s) on equipment

17 FINANCIAL PLANNING

17.1 COSTS OF PLAN IMPLEMENTATION

As a priority, the CMC need to identify and provide costs, associated with this plan, and from those develop annual and monthly budgets and spending/work plans

17.2 SOURCES OF FUNDS

There are a range of ways that ENNR can acquire and/or generate funds, as listed below:

- State budget (FDA)
- AML / Trust Fund (note the trust fund is yet to be confirmed / capitalised)
- Protected area entrance fees
- Recreation service fees, special events and special services
- Accommodation (guest houses/visitor centers)
- Transportation and guiding
- Parking
- Equipment rental
- Food sales (restaurant and store)
- Merchandise sales (equipment, clothing, souvenirs)
- Licenses, permits, and taxes
- Licensing of intellectual property
- Sale or rental of image rights (e.g. for taking photographs)
- Tourism concessions (leased to private or community tourism operators over an extended period, e.g. 10-25 years)

As discussed earlier in the plan, tourism and associated income stream are considered to be a minimal significance for this plan and the NR will be dependent upon state allocated PA budget and support provided by AML (and potentially the trust fund, if that becomes a reality). The CMC should be constantly aware of, manage and update:

- Budgets
- The current cost/revenue balance sheet for the NR
- The need for long terms financial sustainability;
- New funding sources and opportunities.

17.3 REVENUE: CURRENT AND EXPECTED

See 16.1 & 16.2 - the CMC will need to identify all income / revenue streams and amounts, and from that produce a detailed cost/revenue spreadsheet, budgets and spending/work plans

17.4 PROFITABILITY: COMPARISON OF INCOME AND EXPENDITURE

As above, the CMC will need to develop a cost/revenue balance sheet (using Excel) to identify the current balance; shortfall or profit and then maintain use of that tool to monitoring profitability or shortfalls and, moreover, as managers, use the information to change or reduce spending and/or seek new funds, to ensure that the budgets (outgoings and income) are balanced

17.5 BUSINESS PLAN

A business plan is an essential roadmap for success. This is a living document which will project 5 years ahead, in-line with this plan, and outlines the route that CMC intends to take to grow revenues. It should be a strategic document, link to this plan and the plan/strategy developed for the Tri-national Nimba Massif.

Using the information in the plan, especially Section 16, and in communication with AML, FDA managers and NGO partners, the CMC should develop a business plan to accompany this management plan. The business plan should include:

- Executive summary
- Description of ENNR and the CMC
- Revenue/market analysis
- Organisational/management information
- List of income (sources) and sellable products or services the NR produces
- Communications, donor relations and marketing strategy
- Funding requests
- Financial projections

Policy

ENNR should be sufficiently financed to undertake and achieve the activities and goals outlined in the plan and enshrined in the East Nimba Nature Reserve Act of 2003

Action Plan

1. CMC should work with FDA management to review the existing, draft Business Plan (from CI) to see if it can be used or updated to support or become the ENNR Business Plan
2. Calculate the costs of implementing this plan
3. Investigate all sources of funding, existing and potential
4. Produce a cost/revenue balance sheet for ENNR
5. Produce a strategic, integrated business plan for the NR

18 DEVELOPMENT PROGRAMME

18.1 WORK PROGRAMS AND PRIORITIES

See Section 16.

The CMC will need to prioritise issues and activities, found in this plan, and from those produce a set of work plans and individual and/or thematic work programmes

18.2 Development Programme

18.2.1 *Annual Work Plans*

Annual work plans should be produced for the entire NR, based on this management plan and the business plan, as an umbrella plan under which each department and individual has his or her own a workplan. Work plans should include staff training.

18.3 MONITORING OF PROGRESS

The progress and impact of the management plan, and its implementation, needs to be monitored in order to:

- provide feedback for iterative and adaptive management;
- check that targets are being met, including those outlined in this plan;
- identify and avoid unwanted internal (biodiversity) or external (social) impacts

18.3.1 *Monitoring methods*

Three monitoring methods are recommended for ENNR:

1. **SMART** – see section 10 – for monitoring patrol activity, impact on illegals activity and biodiversity, to produce hotspots and inform management planning
2. **METT** – Management Effectiveness Tracking Tool – One of the most widely used/adapted globally applicable generic systems developed to assess protected area management effectiveness. It is used to report progress towards the Convention on Biological Diversity. METT been designed to track and monitor progress towards worldwide protected area management effectiveness.

The methodology is a rapid assessment based on a scorecard questionnaire. The scorecard includes all six elements of management identified in the IUCN-WCPA. Framework (context, planning, inputs, process, outputs and outcomes), but has an emphasis on context, planning, inputs and processes. It is basic and simple to use, and provides a mechanism for monitoring progress towards more effective management over time. It is used to enable park managers and donors to identify needs, constraints and priority actions to improve the effectiveness of protected area management.

METT can be used as a donor / treasury evaluation, to improve management

(adaptive management), and for accountability / audit.

Protected areas receiving funding from the World Bank or from the Global Environment Facility are asked to complete the METT as part of the assessment of project activities. Similarly protected areas which are also designated under international conventions such as the World Heritage Convention and Ramsar Convention are also being asked to undertake convention specific reporting. - See more at: <http://www.wdpa.org/ME/PDF/METT.pdf>

3. **Impact assessment & Safeguards** – In addition to the above management tools, ENNR must also strive to identify, avoid or mitigate environmental (or social) impacts of management activities. The CMC should develop a realistic, manageable system to achieve this, based on / drawing from the following tools
 - a) EIA – Environmental Impact Assessment: ENNR **must** have a EIA frameworks and undertake an EIA for all planning developments like roads, building, trails and so on. THE EIA methodology could also be used to help develop the NR's safeguard system
 - b) FPIC – Free, Prior and Informed Consent: FPIC has been adopted by the Tri-national Nimba Massif initiative and should be seen as a guiding principle for gaining community consent before undertaking activities that will affect them²⁰
 - c) SES – Social and Environmental Safeguards: Developed primarily for forest carbon projects by the CCBA, Rainforest Alliance and CARE, these are useful tools and guidelines for identifying, monitoring, avoiding and mitigating impacts of forest conservation on the environment and local populous
 - d) SESA – Strategic Environmental and Social Assessment: the World Bank's EIA/SES tool, also linked to forest carbon projects but also a very useful reference for the NR in developing their of impacts/safeguards system
 - e) **SIS** – Safeguard Information Systems: Across the world many countries are developing SIS for the developing or landscape scale or nation-wide forest conservation activities, in acknowledgement of the need to systematize the data collection, analysis and use of safeguard information. ENNR should draw on existing SIS research and systems to produce:
 - i. A set of safeguards for ENNR
 - ii. A system of data collection, analysis and use (linked to the SMART system and the overall method by which data collected under this plan is analyzed and used to inform revised management interventions)

Policy

ENNR will develop and use a number of interlinked work plans work programmes and monitoring tools, in conjunction with the (this) management and business plans.

Action Plan

1. Develop work plan and programmes for the NR, it departments and staff
2. Develop a system and tools to monitor implementation
3. Develop system and tools to monitor impacts

²⁰ Some key activities associated with ENNR, like the boundary / exclusion and criminalisation of hunting and farming inside the NR are unavoidable and o not require FPIC, but do require consultation and on-going support mitigate impacts on livelihoods

19 LONGER TERM OBJECTIVES

AML is working on a land use plan for the whole Nimba area. This initiative should be welcomed as it will try to ensure that local people farm in the most appropriate places, using appropriate methods.

The biggest lasting threat to ENNR is hunting, followed by fire. In theory the next most important threat is encroachment – although it is not a current threat, but could become one once ENNR and its boundary is well protected and enforced. Hunting needs to be addressed with law enforcement and, where possible, the development of sustainable alternative to hunting, through job creation and/or livelihood support.

Agriculture will need to be intensified and made permanent (non-shifting) so that land area used for farming could be reduced for the benefit of all. Conservation Agriculture reduces labor, and reduces the need for more land. AML plans to do more research on agronomy and soil science. **This is of huge important for ENNR, because livelihoods, food security, poverty and perceptions of local, affected people are directly linked to threats facing biodiversity conservation inside ENNR.**

20 APPENDICES

APPENDIX 1: ENNR ACT AND BOUNDARY GAZETTEMENT

AN ACT FOR THE ESTABLISHMENT OF THE EAST NIMBA NATURE RESERVE

APPROVED: OCTOBER 10, 2003

PUBLISHED BY AUTHORITY MINISTRY OF FOREIGN AFFAIRS NOVEMBER 4, 2003 MONROVIA, LIBERIA

WHEREAS, it has been the policy of the Government of the Republic of Liberia to adopt such measures as deemed conducive in the interest of the State; and

WHEREAS, our forests are among our greatest natural resources and may be made to contribute greatly to the socio-economic, scientific and educational welfare of Liberia by being managed in such a manner as to ensure their sustainable use; and

WHEREAS, the protection, conservation and sustainable utilization of these resources must be carried out promptly, efficiently and wisely, under such conditions as will ensure continued benefits to present and future generations of Liberia, and

WHEREAS, the Nimba Mountains complex is internationally recognized as a high priority site for its biological richness and Nimba National Forests is on a Government of Liberia list of representative forest habitats recommended for strict protection; and

WHEREAS, the World Heritage Council of UNESCO has declared the Guinea-Côte d'Ivoire side of the Nimba Mountain complex as a World Heritage Site and the Liberian side is likely to meet the criteria for such designation; and

WHEREAS, reclassifying the Nimba National Forests into a protected forest area category will support a tri-national program for the integrated conservation of Mount Nimba and collaboration between Liberia and the countries sharing this landmark:

NOW THEREFORE it is enacted by the Senate and the House of Representatives of the Republic of Liberia, in Legislative Assembled:

Section 1.1 Title: An Act for the Establishment of the Nimba Nature Reserve.

Section 1.2 Short Title: This Act may be cited as the Nimba Nature Reserve Act

Section 2.3 Definitions:

"Chains" means a measurement unit that is 80 chains to a mile²¹.

"Bounds" means lines defining distance between metes.

"Metes" means point of direction change in demarcating boundary lines.

"Metes and Bounds" means the perimeter of a demarcated area.

"Nature Reserve" means an area that does not represent a complete ecological unit, legally set-aside for the preservation and enjoyment of features that have outstanding natural beauty, cultural or biological significance, which may require management intervention.

Section 2.1 Metes, Bounds and Description:

The Nimba Nature Reserve is located in North-Central section of Liberia in Nimba County. It lies within latitudes 7 degree 00 to 8 degrees 00' North and longitudes 8 degrees 00' West.

²¹ A chain is

1. Commencing at a point on the border between Liberia and Cote d'Ivoire at 8.44E, N; 7.52 N;
2. thence a line runs 472 chains due north-west crossing the Noun River along the border over Mount Nimba to -8.5 E, 7.58 N; on the Liberia Guinea border;
3. thence due south west for 144.8 chains to -8.52E, 7.57 N where it meets a tributary of the St. John River;
4. thence the line runs along the northwest side of the St. John River tributary for 316.8 chains to where it crosses the tributary of the St. John River at -8.57E and 7.53N;
5. thence south along the western ridge of the mountain for 362.4 chains to -8.57E, 7.47N;
6. thence due south west for 134.4 chains to -8.58E, 7.45 N;
7. thence south for 90.4 chains to -8.58E, 7.43N;
8. thence southwest for 103.2 chains to -8.59E 7.42N;
9. thence the line runs southeast along the south-western slope of the mountain ridge for 59.2 chains to -8.59E, 7.41 N,
10. thence 54.4 chains to -8.58E, 7.41 N;
11. thence due northeast for 786.4 chains²² to just north of the town of Setontuo at 8.47E, 7,51 N;²³
12. here the line meets the Cavalla River and follows its south-eastern bank for 193.6 chains to the point of commencement embracing 33,528 acres of land and no more.

Section 2.2 Management of the East Nimba Nature Reserve: The said Nature Reserve shall be managed as a permanent component of the Protected Forest Area Network of Liberia in accordance with such rules and regulations as may from time to time be promulgated by the Forestry Development Authority of Liberia for the purpose.

Section 3: This Act shall take effect immediately upon publication in hand-bills.

Any Law to the Contrary Notwithstanding.

APPENDIX 2: CO-MANAGEMENT AGREEMENT

Co-Management Agreement for the East Nimba Nature Reserve between Forestry Development Authority, and the Joint Forest Management Committee of Sehyi, Gba and Zor Communities

WHEREAS, our forests are among our greatest natural resources, an endowment from nature to the people of Liberia: and

WHEREAS, Sections 2.2 and 3.1(a) of the National Forestry Reform Law (NFRL) of 2006 empower the FDA to manage the forest estate of Liberia;

WHEREAS, the Nimba Mountains complex is internationally recognized as a high priority site for its biological richness; and

WHEREAS, the 2003 Act for the Establishment of the East Nimba Nature Reserve establishes the authority of the Forestry Development Authority of Liberia to promulgate rules and regulations for the purpose of managing the East Nimba Nature Reserve and

WHEREAS, Effective management of wildlife and protected areas is best achieved by the full involvement of those who live closest to them - taking their needs into consideration; and

WHEREAS, the 2006 National Forestry Reform Law and the Community Rights Law of 2009, recognize the use and management rights of communities; and

²² A chain is 22 yards long (or 20.12 metres)

²³ These highlighted items need to be changed to match the situation on the ground.

WHEREAS, Chapter 10 of the 2006 National Forestry Reform Law grants the Forestry Development Authority the power through regulation to transfer user and management rights to communities and the obligation to develop the capacity of communities for sustainable forest management; and

WHEREAS, the communities of Sehyi, Gba and Zor living around the East Nimba Nature Reserve have confirmed their willingness to participate in co-management of the said reserve and have organized themselves by forming a Joint Forest Management Committee (hereinafter referred to as "JFMC"):

THEREFORE, in consideration of the foregoing premises,

A Co-Management Agreement (hereinafter referred to as the "Agreement") is made for the East Nimba Nature Reserve, hereinafter referred to as ENNR, and entered into by and between the Government of Liberia, represented by Forestry Development Authority, hereinafter referred to as "FDA" and the Community Administrations of Sehyi, Gba and Zor, represented by their (JFMC), collectively referred to as "The Parties".

Article I. AUTHORITY

Section 1.01 The FDA is the legislatively mandated agency responsible for the management of the ENNR and has the authority to enter into this Agreement under Section 2.2 of the 2003 Act for the Establishment of the East Nimba Nature Reserve.

Section 1.02 The JFMC is the representative body of the Sehyi, Gba and Zor communities of hereinafter referred to as "the Communities" and represents the ENNR co-management interests of these Communities. The JFMC has the authority to enter into this agreement on behalf of these Communities as attested by the attached signatures of the Sehyi Clan Chief Gba Clan Chief and Zor Paramount Chief and the Commissioners of Sanniquellie-Mah, Yarmein and Gbehley-Geh districts.

Article II. PURPOSE

Section 2.01 The JFMC, representing the Communities' ENNR interests, and FDA, representing the interests of the citizens of Liberia, desire to work in partnership in order to:

- (a) Establish a management body for the co-management of the ENNR made up of representatives of the JFMC and FDA and hereinafter referred to as the ENNR Co-management Committee.
- (b) Promote the conservation and management of biodiversity in the ENNR and jointly reduce and/or avoid threats to that biodiversity;
- (c) Establish a process of shared responsibilities regarding use & management of ENNR;
- (d) Provide information to the Communities and raise awareness about sustainable use, management and conservation and the value of forest resources to the community and the nation;
- (e) Ensure sharing of the costs and benefits of ENNR management;
- (f) Identify and resolve, through a consultative process, any conflicts that may arise in the management and conservation of resources in the ENNR;
- (g) Ensure the effective and efficient management of the ENNR for this and future generations, and
- (h) Assist the management of the ENNR.

Article III. GUIDING PRINCIPLES

Section 3.01 One of the best ways to conserve and manage the resources of the ENNR is through a partnership between the JFMC and FDA.

Section 3.02 A key to the success of this partnership is to incorporate the spirit and intent of co-management by building trust and by establishing close cooperation between the Parties. Shared decision-making shall be through consensus, based on mutual respect and understanding.

Article IV. OPERATIONAL STRUCTURE

Section 4.01 The Parties agree to establish a co-management body to be called the ENNR Co-Management Committee hereinafter referred to as the CMC, to provide guidance and oversight for the implementation of this Agreement.

Section 4.02 Upon effect of this Agreement the FDA shall appoint six (6) members to the CMC to represent the FDA. The JFMC membership comprising also of six (6) shall be in equal

proportion of two (2) persons each from Sehyi, Gba and Zor to represent the Communities, The members of the CMC will serve at the pleasure of the Party by which they are appointed, The CMC shall decide on the chairperson at the first meeting. Each party shall select a co-chair to the CMC. One (1) co-chair shall be a representative of the FDA and one (1) a representative of JFMC.

Section 4.03 The CMC shall hold at least four (4) meetings a year and may hold other meetings, as necessary, at the request of either party. The CMC meetings will be held and conducted at the ENNR Headquarters Office unless mutually agreed otherwise. A quorum of two thirds of the CMC members is required to conduct a meeting. Decisions of the CMC shall be through consensus, based on mutual respect.

RIGHTS AND OBLIGATIONS

Section 4.04 The Co-Management Committee shall:

- (a) In consultation with Communities, develop, draft and submit to FDA for approval, rules for ENNR management regarding control of hunting, mining, fishing, farming, settlement, and wildlife protection within the ENNR; domestic animal control; fire control; illegal entry; and non-Timber Forest Product (NTFP) collection and management.²⁴
- (b) Provide management oversight for implementation of the Agreement and five (5) year co-management Plan, and enforcement of ENNR rules and regulations.
- (c) Identify and prioritize training and support to Communities for co-management activities. This may include: enforcement, monitoring of biodiversity, and biodiversity surveys.
- (d) Jointly agree on the criteria and standards for employment of Community members.
- (e) Submit a quarterly budget to FDA to fulfill specific responsibilities stated in this Agreement for each quarter that the Agreement is in effect based on Action plans prepared jointly by the CMC. The CMC will disburse the annual funds provided by FDA and provide an accounting of the funds to FDA. Any unused funds will be returned to FDA.
- (f) Jointly identify and distribute sources of revenue that can be shared jointly between the Communities and FDA.

Section 4.05 The FDA will:

- (a) Provide guidelines, training and other technical assistance to the members of the CMC on jointly identified topics including management planning, enforcement, biodiversity monitoring and biodiversity surveying.
- (b) Support awareness raising activities of the JFMC through technical support and provision of materials regarding control of farming, hunting, mining, fishing, fire, domestic animal control, illegal entry; wildlife protection; and NTFP collection,
- (c) Provide annual funds to the CMC to carry out the annual work plan activities.
- (d) Ensure that forest co-management activities are carried out according to rules and regulations applicable in the ENNR, and in case of violations, impose the pertinent fines and other penalties.
- (e) Support community-management of identified and protected cultural sites within ENNR

Section 4.06 The JFMC shall:

- (a) Contribute to the development of a five (5) year co-management plan, and annual work plans for ENNR.
- (b) Conduct awareness raising activities of the JFMC through technical support and provision of materials regarding control of farming, hunting, mining, fishing, fire, domestic animal control, illegal entry; wildlife protection; and NTFP collection.
- (c) Organize community-based work teams to be trained for co-management planning and other management activities.
- (d) Consistent with the five (5) year co-management plan and other rules and regulations jointly developed for ENNR, oversee ENNR forest use by villagers and regularly monitor settlement, hunting, mining, fishing, farming, wildlife protection, domestic animal control, illegal entry, and collection of various forest products and other customary forest-use activities,
- (e) Seek guidance from the FDA on ENNR Buffer Zone Management.

²⁴ This item contradicts the ENNR Act 2003.

- (f) identify and protect cultural sites within the ENNR.

Article V. FUNDING

Section 5.01 Recognizing that costs may be associated with the implementation of this Agreement, the Parties agree that:

- (a) Any requirement of this Agreement for the obligation or expenditure of funds by the CMC, JFMC or FDA for the use of staff or agency resources shall be subject to the availability of appropriated funds.
- (b) The FDA, JFMC and CMC will assist each other to seek funding from a variety of sources to support co-management of the ENNR.
- (c) The FDA will review the annual budget and will assist with the obligation and provision of funding as deemed appropriate under the authorities specified in this Agreement.

ARTICLE VI. EFFECTIVITY, SUSPENSION, AND TERMINATION OF THE AGREEMENT

Section 6.01 The agreement shall take effect immediately upon signing by all parties concerned and shall continue to be effective for a period of 5 years from the date of signing. Thereafter the parties concerned shall negotiate for the renewal of the agreement for a similar period.

Section 6.02 The FDA may terminate the Agreement and shall notify the JFMC in writing signed by the Managing Director. The JFMC may terminate the Agreement and shall notify the FDA in writing signed by the chair of the JFMC.

Article VII AMENDMENT

Section 7.01 Upon the proposal of any of the parties, agreement may be amended a mutually agreed by all the parties concerned.

Article VIII ARBITRATION

Section 8.01 In case of any conflict relating to this Agreement that the parties cannot resolve by themselves. arbitration shall be done in a meeting chaired by a representative of the FDA, and a chair from the Communities. If this fails to resolve the conflict a third meeting shall be held and be chaired by a third party mediator to be jointly selected and agreed upon by the FDA and the JFMC. If still this fails, the matter shall be brought to the proper Courts for settlement.

Section 8.02 Either party shall have the rights to engage a legal adviser or any suitable party for assistance.

The Provisions of this Agreement have been thoroughly discussed and fully negotiated in a language understandable to all parties concerned. The Agreement is hereby signed in – original copies, a copy each for the JFMC and FDA.

For the JFMC

Saye Thompson

Chairperson, JFMC Sept 18, 2010

Commissioner of Sanniquellie-Mah Administrative District,

Commissioner of Gbehley-Geh Administrative District,

Yarwein Administrative District,

For the Government

Hon. Moses Wogbeh

MD, FDA, Sept 18, 2010

Sept 18, 2010

Sept 18, 2010

Sept 18, 2010

APPENDIX 3: CHECKLISTS OF BIRDS

From BirdLife Database <http://www.birdlife.org/datazone/sitefactsheet.php?id=6458>

V Vulnerable	NT Near Threatened	LC Least Concern
DD Data Deficient	NR No Records	
White-breasted Guineafowl <i>Agelastes meleagrides</i> , V		Cassin's Hawk-eagle <i>Aquila africanus</i> , LC
Forest Francolin <i>Francolinus lathamii</i> , LC		White-spotted Flufftail <i>Sarothrura pulchra</i> , LC
Ahanta Francolin <i>Francolinus achantensis</i> , LC		Nkulengu Rail <i>Himantornis haematopus</i> , LC
Hartlaub's Duck <i>Pteronetta hartlaubii</i> , LC		Grey-throated Rail <i>Canirallus oculeus</i> , LC
Spot-breasted Ibis <i>Bostrychia rara</i> , LC		Afep Pigeon <i>Columba unicincta</i> , LC
White-crested Tiger-heron <i>Tigriornis leucolopha</i> , LC		Western Bronze-naped Pigeon <i>Columba iriditorques</i> , LC
Congo Serpent-eagle <i>Dryotriorchis spectabilis</i> , LC		Blue-headed Wood-dove <i>Turtur brehmeri</i> , LC
Red-thighed Sparrowhawk <i>Accipiter erythropus</i> , LC		Grey parrot (Western ssp) <i>Psittacus erithacus</i> , NR
Long-tailed Hawk <i>Urotriorchis macrourus</i> , LC		Guinea Turaco <i>Tauraco persa</i> , LC

- Yellow-billed Turaco *Tauraco macrorhynchus*, LC
 Dusky Long-tailed Cuckoo *Cercococcyx mechowi*, LC
 Olive Long-tailed Cuckoo *Cercococcyx olivinus*, LC
 Black-throated Coucal *Centropus leucogaster*, LC
 Sandy Scops-owl *Otus icterorhynchus*, LC
 Fraser's Eagle-owl *Bubo poensis*, LC
 Shelley's Eagle-owl *Bubo shelleyi*, NT
 Akun Eagle-owl *Bubo leucostictus*, LC
 Rufous Fishing-owl *Scotopelia ussheri*, V
 Maned Owl *Jubula lettii*, DD
 Red-chested Owlet *Glaucidium tephronotum*, LC
 Brown Nightjar *Caprimulgus binotatus*, LC
 Black Spinetail *Telacanthura melanopygia*, LC
 Sabine's Spinetail *Rhaphidura sabini*, LC
 Cassin's Spinetail *Neafrapus cassini*, LC
 Bates's Swift *Apus batesi*, LC
 Blue-throated Roller *Eurystomus gularis*, LC
 Chocolate-backed Kingfisher *Halcyon badia*, LC
 African Dwarf-kingfisher *Ceyx lecontei*, LC
 White-bellied Kingfisher *Alcedo leucogaster*, LC
 Black Bee-eater *Merops gularis*, LC
 Blue-headed bee-eater *Merops muelleri*, NR
 Forest Woodhoopoe *Phoeniculus castaneiceps*, LC
 Black Dwarf Hornbill *Tockus hartlaubi*, LC
 Red-billed Dwarf Hornbill *Tockus camurus*, LC
 African Pied Hornbill *Tockus fasciatus*, LC
 White-crested Hornbill *Tropicranus albocristatus*, LC
 Piping Hornbill *Bycanistes fistulator*, LC
 Brown-cheeked Hornbill *Bycanistes cylindricus*, V
 Black-casqued Hornbill *Ceratogymna atrata*, LC
 Yellow-casqued Hornbill *Ceratogymna elata*, V
 Naked-faced Barbet *Gymnobucco calvus*, LC
 Bristle-nosed Barbet *Gymnobucco peli*, LC
 Speckled Tinkerbird *Pogoniulus scolopaceus*, LC
 Red-rumped Tinkerbird *Pogoniulus atroflavus*, LC
 Yellow-throated Tinkerbird *Pogoniulus subsulphureus*, LC
 Yellow-spotted Barbet *Buccanodon duchailui*, LC
 Hairy-breasted Barbet *Tricholaema hirsuta*, LC
 Yellow-billed Barbet *Trachyphonus purpuratus*, LC
 Cassin's Honeyguide *Prodotiscus insignis*, LC
 Yellow-footed Honeyguide *Melignomon eisentrauti*, DD
 Spotted Honeyguide *Indicator maculatus*, LC
 Willcocks's Honeyguide *Indicator willcocksii*, LC
 Lyre-tailed Honeyguide *Melichneutes robustus*, LC
 Little Green Woodpecker *Campethera maculosa*, LC
 Buff-spotted Woodpecker *Campethera nivosa*, LC
 Brown-eared Woodpecker *Campethera caroli*, LC
 Gabon Woodpecker *Dendropicos gabonensis*, LC
 Fire-bellied Woodpecker *Thripias pyrrhogaster*, LC
 Rufous-sided Broadbill *Smithornis rufolateralis*, LC
 African Shrike-flycatcher *Megabyas flammulatus*, LC
 West African Batis *Batis occulta*, LC
 Chestnut Wattle-eye *Platysteira castanea*, LC
 Red-cheeked Wattle-eye *Platysteira blissetti*, LC
 Chestnut-bellied Helmet-shrike *Prionops caniceps*, LC
 Fiery-breasted Bush-shrike *Malaconotus cruentus*, LC
 Lagden's Bush-shrike *Malaconotus lagdeni*, NT
 Large-billed Puffback *Dryoscopus sabini*, LC
 Sooty Boubou *Laniarius leucorhynchus*, LC
 Blue Cuckooshrike *Coracina azurea*, LC
 Western Wattled Cuckooshrike *Campephaga lobata*, V
 Western Black-headed Oriole *Oriolus brachyrhynchus*, LC
 Black-winged Oriole *Oriolus nigripennis*, LC
 Shining Drongo *Dicrurus atripennis*, LC
 Blue-headed Crested-flycatcher *Trochocercus nitens*, LC
 Black-head Paradise-flycatcher *Terpsiphone rufiventer*, LC
 Dusky Crested-flycatcher *Elminia nigromitrata*, LC
 Chestnut-capped Flycatcher *Erythrocerus mcallii*, LC
 White-necked Picathartes *Picathartes gymnocephalus*, V
 Dusky Tit *Parus funereus*, LC
 Forest Penduline-tit *Anthoscopus flavifrons*, LC
 Tit-hylia *Pholidornis rushiae*, LC
 Square-tailed Saw-wing *Psalidoprocne nitens*, LC
 Fanti Saw-wing *Psalidoprocne obscura*, LC
 White-throated Blue Swallow *Hirundo nigrita*, LC
 White-eyed Prinia *Prinia leontica*, V
 Black-capped Apalis *Apalis nigriceps*, LC
 Sharpe's Apalis *Apalis sharpii*, LC
 Yellow-browed Camaroptera *Camaroptera superciliaris*, LC
 Olive-green Camaroptera *Camaroptera chloronota*, LC
 Grey Greenbul *Andropadus gracilis*, LC
 Anson's Greenbul *Andropadus ansoni*, LC
 Plain Greenbul *Andropadus curvirostris*, LC
 Golden Greenbul *Calyptocichla serina*, LC
 Honeyguide Greenbul *Baeopogon indicator*, LC
 Spotted Greenbul *Ixonotus guttatus*, LC
 Simple Greenbul *Chlorocichla simplex*, LC
 Swamp Greenbul *Thescelocichla leucopleura*, LC
 Leaf-love *Pyrrhurus scandens*, LC
 Baumann's Greenbul *Phyllastrephus baumanni*, LC
 White-throated Greenbul *Phyllastrephus albigularis*, LC
 Icterine Greenbul *Phyllastrephus icterinus*, LC
 Common Bristlebill *Bleda syndactylus*, LC
 Green-tailed Bristlebill *Bleda eximius*, NT
 Grey-headed Bristlebill *Bleda canicapillus*, LC
 Bearded Bulbul *Criniger barbatus*, LC
 Red-tailed Bulbul *Criniger calurus*, LC
 Yellow-bearded Greenbul *Criniger olivaceus*, V
 Yellow-spotted Nicator *Nicator chloris*, LC
 Black-headed Rufous Warbler *Bathmocercus cerviniventris*, NT
 Kemp's Longbill *Macrosphenus kempii*, LC
 Grey Longbill *Macrosphenus concolor*, LC
 Violet-backed Hylia *Hylia violacea*, LC
 Green Hylia *Hylia prasina*, LC
 Rufous-crowned Eremomela *Eremomela badiceps*, LC
 Green Crombec *Sylvietta virens*, LC
 Lemon-bellied Crombec *Sylvietta denti*, LC
 Blackcap Illadopsis *Illadopsis cleaveri*, LC
 Rufous-winged Illadopsis *Illadopsis rufescens*, NT
 Puvell's Illadopsis *Illadopsis puvelli*, LC
 Brown Illadopsis *Illadopsis fulvescens*, LC
 Capuchin Babbler *Phyllanthus atripennis*, LC
 Copper-tailed Glossy-starling *Lamprotornis cupreocauda*, NT
 Chestnut-winged Starling *Onychognathus fulgidus*, LC
 Narrow-tailed Starling *Poeoptera lugubris*, LC
 White-tailed Ant-thrush *Neocossyphus poensis*, LC
 Rufous Flycatcher-thrush *Stizorhina fraseri*, LC
 Grey Ground-thrush *Zoothera princei*, LC
 White-tailed Alethe *Alethe diademata*, NR
 Forest Robin *Stiphornis erythrothorax*, LC
 Lowland Akalat *Sheppardia cyornithopsis*, LC
 Blue-shouldered Robin-chat *Cossypha cyanocampter*, LC
 Forest Scrub-robin *Erythropgia leucosticta*, LC
 African Forest Flycatcher *Fraseria ocreata*, LC
 White-browed Forest Flycatcher *Fraseria cinerascens*, LC
 Nimba Flycatcher *Melaenornis annamarulae*, V
 Ussher's Flycatcher *Muscicapa ussheri*, LC
 Olivaceous Flycatcher *Muscicapa olivascens*, LC
 Little Grey Flycatcher *Muscicapa epulata*, LC
 Dusky-blue Flycatcher *Muscicapa comitata*, LC
 Cassin's Grey Flycatcher *Muscicapa cassini*, LC
 Grey-throated Tit-flycatcher *Myioparus griseigularis*, LC
 Scarlet-tufted Sunbird *Anthreptes fraseri*, LC
 Green Sunbird *Anthreptes rectirostris*, LC

Little Green Sunbird *Nectarinia seimundi*, LC
 Blue-throated Brown Sunbird *Nectarinia cyanolaema*, LC
 Carmelite Sunbird *Nectarinia fuliginosa*, LC
 Buff-throated Sunbird *Nectarinia adelberti*, LC
 Tiny Sunbird *Nectarinia minulla*, LC
 Johanna's Sunbird *Nectarinia johannae*, LC
 Superb Sunbird *Nectarinia superba*, LC
 Vieillot's Black Weaver *Ploceus nigerrimus*, LC
 Yellow-mantled Weaver *Ploceus tricolor*, LC
 Maxwell's Black Weaver *Ploceus albinucha*, LC

Preuss's Weaver *Ploceus preussi*, LC
 Red-vented Malimbe *Malimbus scutatus*, LC
 Gray's Malimbe *Malimbus nitens*, LC
 Crested Malimbe *Malimbus malimbicus*, LC
 Red-headed Malimbe *Malimbus rubricollis*, LC
 Red-fronted Antpecker *Parmoptila rubrifrons*, NT
 White-breasted Negrofinch *Nigrita fusconotus*, LC
 Chestnut-breasted Negrofinch *Nigrita bicolor*, LC
 Crimson Seedcracker *Pyrenestes sanguineus*, LC
 Western Bluebill *Spermophaga haematina*, LC

APPENDIX 4: NEIGHBOURING COMMUNITIES

The purpose of the discussion was to develop rational criteria for identifying communities within the stakeholder zone. Maps were provided for participants to look at and initial considerations included:

- which communities are closest to the reserve
- who exploits the resources in the reserve
- which communities use the reserve the most and also those that travel further distances to use ENNR resources
- land ownership

Zor - Primary stakeholders

Community	Score
Sehtontuo	6
Geipa	7
Yolowee	7
Dulay	4
Nyantuo	4
Kpolay	4
Zualay	5
Zortapa	7

Primary stakeholders in Zor = 8

Gba – Primary stakeholders

Community	Score
Gbobayee	7
Zolowee	5
Gbapa	7
Cassava Farm	6
Bassa Village	6
Gonakollie	6
Camp 4	7
Leagbala	7
Yekepa	5

Primary stakeholders in Gba = 9

Zor – Secondary stakeholders

Community	Score
Goagurtuo	5
Kentorkporglay	4
Zorgowee 2	2
Zorgorpa	1

Secondary stakeholders in Zor = 4

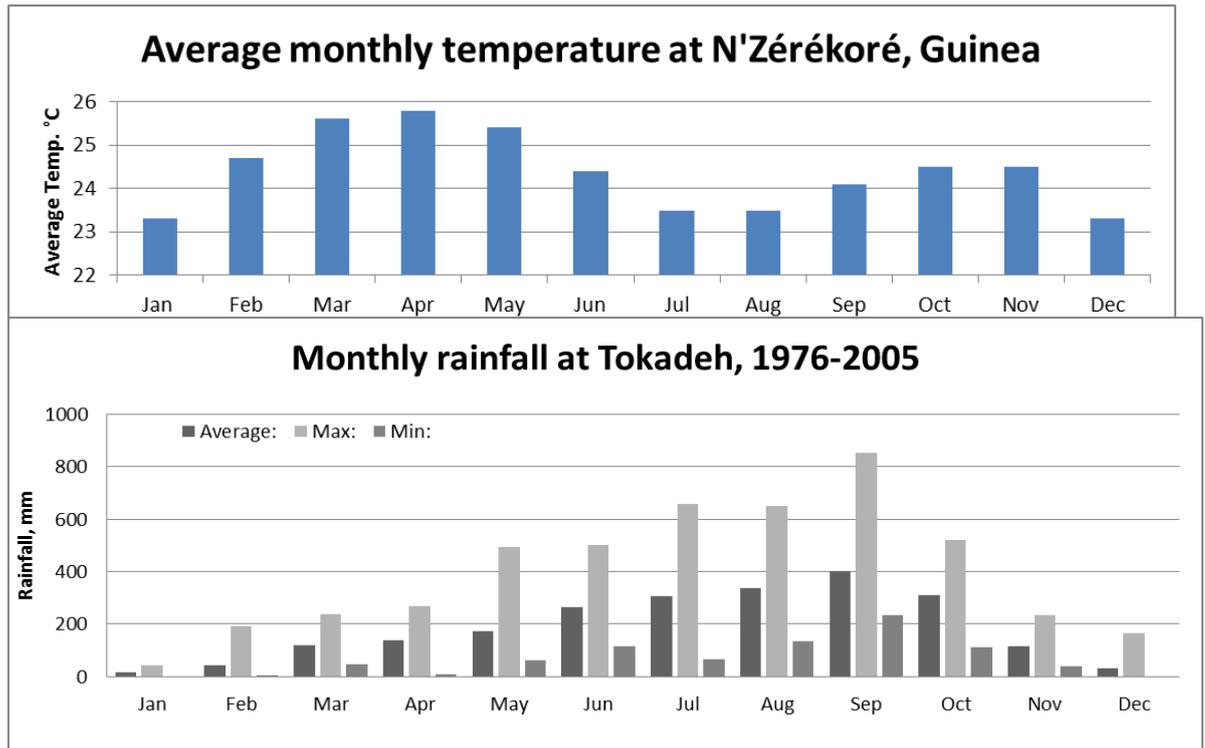
Gba – Secondary stakeholders

Community	Score
New Yekepa	6
Barpa	5
Suakarzue	3

Secondary stakeholders in Gba = 3

APPENDIX 5: CLIMATE DATA

It is thought that the detailed records from N'Zérékoré which is nearby in Guinea, provide good data for the ENNR area as well.



Average annual rainfall in Tokadeh is 2,256mm. The wettest recorded year was 2,886mm and the driest was 1,651mm²⁵. Average rainfall in Sanniquellie is 2256 mm.

APPENDIX 6: SPECIALIST TOUR COMPANIES

www.ashantiafricantours.com Based in Ghana – they have a good reputation, and organize butterfly tours as well as birds.

www.rockjumperbirding.com Based in South Africa, they are well known and organize tours to many countries.

www.ventbird.com

www.birdquest-tours.com

www.birdingpal.org

www.pibird.com

²⁵ Fullwood, John, for AML, 2010: Aspects of climate for iron ore extraction in Northern Nimba, Liberia

APPENDIX 7: SUGGESTED INCENTIVES

- Arrest of poacher(s) where at least one person is armed with a serviceable firearm US\$2.50 per staff member per poacher arrested and US\$1.00 for each subsequent serviceable firearm recovered.
- Arrest of unarmed poacher(s) being in possession of wildlife or implements capable of destroying wildlife (e.g. snares, traps or cutlass) – US\$1.00 per staff member per person arrested with such implements. US\$1.00 per staff member per group of unarmed poachers accompanying poachers with implements.
- Arrests of poachers whose intent is to gather non-wildlife products (e.g. snail or plant gatherers) US\$1.00 per staff member per group of poachers arrested.

Special considerations

- Staff would be informed and will be reminded that any incentive system may only last as long as the funding is available. All suspects arrested must be formally charged. No incentives will be offered in the case of children or those not charged.
- Rangers who are part of the patrol team will receive double the above amounts.
- Food items will be those that can be easily transported and stored on patrols.
- With time, other forms of incentives (e.g. Certificate Of Excellence for hard working staff) will be introduced;
- The proposed incentive system will be tested for a 3 months trial period, then reviewed and modified as necessary.

APPENDIX 8: PEOPLE AND ORGANIZATIONS CONSULTED

Participants at Project Planning Workshop, Sanniquellie, April 15-18, 2013

Roger W. Luke	Hellen Weanquoi
Saye Thompson	James Karmen
Abu B. Kaba	Joe Dayee
Albert Gbarto	Joseph N. Greene
Amelia Korden	Korvah K. Vaynabah
Dada S. Konkah	Lawrence Zulu
Edward J. Smallwood	Moses N. Gonsahn
Francis S. Karborkpeh	Peter D. Garnloe
Gaye Dokpah	Robert G. Dolo
Harrison Y. Geh	

Participants at the ENNR Management Planning Workshop, Ganta, April 2013

Harrison S. Karnwea	MD of FDA
Catfish Brownell	Env Management BHP Billiton / Euro Nimba
Darlington Tuagben	NRM specialist USAID
Harry S. Carson	EPA / Nimba Liberia
D. Nuah Biah	Prosper forestry officer
Darlington Jacobs	Community Forest Management Body GBA community
Edward G. Gbeintor	Wildlife manager at FDA
John Mantor	Vice President Exc

Jonathan W. Davies	Biodiversity Co-ordinator & Nat'l FP for BD at EPA	
Morris B. Kamara	PA management at FDA	
Korvah K. Vanyanbah	FDA and member of CMC	
Barry Bond	ZOR community EC President	
U. Y. Karsiah	Community forest management body chairman in ZOR community	
Peter Z. Gohn	Conservation agriculture technician ARS	
James Karmen	CMC SEHYI community	
Joe Dryer	CMC	
Martin Vesselee	PROSPER	
Eddy Niesen	CI	
D. Bartoa Barthuah	GOL/MIA rep ZOR community	
Cooper Walaka Clanchies		
Theo Freeman	Head FDA	
Gabriel D. Gbanlon	District commissioner	
Joseph N. Greene	FDA / ENNR	
Gaye Dokpah	Community member on CMC	
Dada S. Konkah	CMC community representative	
Hellen Weansuoi	CMC Chaplain	
Edward Smallwood	FDA / CMC at ENNR zone warden	
Alvin Poure	AML	
Jessica Allen	Conservation International	
Samual G. Johnson	Secretary Exec Committee GBA	
Renee A. Murray	Programme co-ordinator conservation international	
Roger Luke	Reserve Warden at ENNR	
Borwen L. Sayon	Conservation Practitioner	
John Howell	ArcelorMittal Liberia environmental adviser	
Phil Marshall	Consultant with FFI protected Areas and management plan expert	
Jens Lund Hansen	FFI Fauna and Flora international Liberia	
Curtis Barnard	Technical Manager at CI in Guyana	
Owen Henderson	Workshop Facilitator	
Jessica Donovan, CI		14 Nov 2013
Vaneska Litz, Prosper.		15 Nov 2013
The people of Sehtontuo		18 Nov 2013
The people of Bassa		19 Nov 2013
Sorrel Jones – Chimp research at Coldwater		19 Nov 2013
The staff of Geipa Camp		22 Nov 2013
The staff of Camp 4		21 Nov 2013
Tri-National Meeting participants		3-5 Dec 2013
Szabolcs Sáfián – butterfly researcher – Yekepa		7 Dec 2013
Co-Management Committee various occasions, and		10-12 Dec 2013

APPENDIX 9: SUMMARY OF COMMENTS AND REVISIONS

APPENDIX 10: REFERENCES

- ArcelorMittal Liberia, 2013. *Biodiversity Conservation Programme, Annual Report 2012-2013*
- ArcelorMittal Liberia, 2013: *A Guide to the Snakes of Liberia*
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- Government of Liberia, 2003: *An Act for the Establishment of the East Nimba Nature Reserve*
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- Nielsen, E, Zurita P & Banks S, (2010): *Conservation agreements as a tool to generate direct incentives for biodiversity conservation*, Biodiversity, 11:1-2, 5-8
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- Scott Wilson for AML, 2010: Western Range DSO Iron Ore Project, Volume 3, Part 6: *Landscape Character and Visual Amenity Assessment*
- UNDP 2012: *International Guidebook of Environmental Finance Tools. Chapter 4, Protected Areas*

URS for ArcelorMittal, 2013: Distribution maps for species of conservation concern in the Nimba Range, Liberia.

APPENDIX 11: ABBREVIATIONS

AML	ArcelorMittal Liberia
ARS	Agriculture Relief Services
CA	Conservation Agriculture
CFMB	Community Forestry Management Body
ENNR	East Nimba Nature Reserve
FEE	Friends of the Ecosystem System and Environment
FDA	Forestry Development Authority
LRCFP	Land Rights and Community Forestry Programme
MOA	Ministry of Agriculture
PTA	Parent Teacher Association
RICCE	Rural Integrated Center for Community Empowerment
STEWARD	Sustainable and Thriving Environments for West African Regional Development